SPANNING THE COMMERCE CLAUSE: THE WHEELING BRIDGE CASE, 1849-1856

by

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To Harrison

and

in Memory of

Pinkey

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Abstract of Dissertation Presented to the Graduate School of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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Pennsylvania v. Wheeling and Belmont Bridge Company, a series of Supreme Court decisions of the early 1850s, demonstrates that the historical concept of "instrumental" relationships between law and private initiative is not valid in all areas of the economy. How American public policy treated bridges represents an important aspect of the relationship between law and transportation technology in the nineteenth century.

Early nineteenth-century law has been seen by economic and legal historians to support the release of creative energy to benefit the public. Demand for internal improvements sponsored advances in technology, while competition led to conflicts between technologies. These conflicts involved both competing systems and also outright obstruction of one system by another: maintaining the constant flow of land traffic jeopardized the constant flow of river traffic where the two systems met.

Bridges emerged as critical links in expanding transportation networks. An important example was the

Wheeling and Belmont Bridge, the first bridge to span the Ohio River. Pennsylvania v. Wheeling Bridge was the first Supreme Court case to address bridge technology and was the leading case for most nineteenth-century disputes regarding obstruction of navigable waterways by bridges. In the initial decision the Court found for the steamboat interests and recognized the importance of navigation to the economic vitality of the nation. Congress' subsequent designation of the bridge as a post route anticipated railroad demand to cross western rivers to avoid costly transshipment.

The second Wheeling Bridge decision involved less competing transportation systems than the role of branches of government in resolving conflicts. The majority of the Court found that Congress' action was within its commerce power. But the legislation and therefore the second Supreme Court decision were restricted to the Wheeling crossing. For the remainder of the nineteenth century Congress designated individual bridges on an ad hoc basis. The consistency of dimensions selected for designation (modelled on the Wheeling Bridge) and of enforcement procedures (beginning in the 1870s) provided an early form of regulation. However, until a predictable bridge policy developed in the late nineteenth century, law was not "instrumental" in this important area of technology.

CHAPTER I
LEGAL HISTORY, TECHNOLOGICAL CHANGE AND THE TRANSPORTATION REVOLUTION

For more than thirty years James Willard Hurst's Law and the Conditions of Freedom in the Nineteenth-Century United States has provided the framework in which to organize analyses of legal and economic change.[1] Hurst found that both statutory and judge-made law supported positive relationships among individuals, governments and the economy. He postulated that these "instrumental" relationships combined material abundance and private initiative to "release creative energy" for the benefit of society.

Hurst's Law and Social Process continued important themes of Law and the Conditions of Freedom and propounded American expectations of the legal system.[2] According to Hurst individuality, scarce manpower and scarcer liquid capital contributed to an economic climate which allowed the market to assume too large a role in social choice in the early national period. At the same time government institutional characteristics of brief legislative sessions and underdeveloped executive agencies permitted ad hoc choices based on expediency to flourish. Judges of the period shared the legislators' promotional biases and routinely validated instrumental laws which provided

leverage to private initiative at the expense of longer-term public considerations.

One of the most active areas of public aid for private initiative was transportation development. Promoters of internal improvements emphasized that government support would lead directly to better communication and movement of goods, and indirectly to increased capital formation, large-scale corporate enterprise and settlement of undeveloped territory. Early nineteenth-century legislatures supplied community transportation needs by building improvements at public expense and by granting generous franchises to transportation promoters.

By mid-century, however, new technologies competed with older ones; for example, railroads challenged steamboats for passenger and freight carriage. When railroads sought connections across navigable rivers, water-based interests vigorously objected, claiming that the bridges proposed by the railroads would obstruct navigation. How American public policy dealt with these conflicts between land and water interests in the Ohio and Mississippi River Valleys represents an important aspect of the relationship between law and technological choice. According to Hurst's model, instrumental American public policy supported the new railroad technology and released creative energy to build bridges. But analysis of the technological and legal contexts of nineteenth-century bridge law suggests that

Hurst's model describes only one aspect of the role of law in the evolution of transportation technology.

Since 1902 historians have addressed the contribution of American government to transportation. In that year Guy Callender explored the development of business enterprise and concluded that "down to the Civil War, except in [the] case of the banking industry, the powers of the government were used to encourage and assist private enterprise, not to restrict it."[3] Western settlement and economic growth, according to Callender, demanded access to markets. Expansion of existing transportation facilities required capital, but investors preferred less risky endeavors. In order to encourage private investment in transportation facilities, Callender found that westerners and eastern commercial interests advocated public sponsorship or public-private partnerships.

Studies in the 1940s sponsored by the Committee on Research in Economic History reevaluated the Callender thesis and demonstrated that a common ideology advocating public support for economic growth produced direct government intervention. Internal improvement development formed the cornerstone of this policy. Analyzing rhetoric and statute law, Oscar and Mary Handlin found that the concept of "commonwealth," nurtured in the colonial township tradition of Massachusetts and reinforced by social cohesion, served to validate government's active economic role.[4] Using similar sources, Louis Hartz demonstrated

Pennsylvanians' sense of "public duty" as the motivating force for the active role of the legislature in economic affairs.[5] Other studies dealt with the role of government in the economies of Georgia and Missouri.[6]

Building on these state studies, Carter Goodrich extended the field of research in Government Promotion of American Canals and Railroads 1800-1890.[7] According to Goodrich the "improving spirit" motivated public works promoters at local, state and national levels. Nineteenth-century Americans believed that improving the natural advantages of the new country was a great civic undertaking which would benefit society at large.

While these historians argued that a common ideology motivated government support for economic growth in the first half of the nineteenth century, others viewed partisan affiliation as the primary factor in economic policy. Beginning in the 1950s these political historians questioned whether the coalitions of regional-class interests posited by progressive historians could produce a responsible-party-government model.[8] By examining the critical links in this model (political rhetoric of candidates, electoral voting behavior, legislative voting behavior and executive action), political historians placed government participation in the economy in a new perspective.[9]

Studies of state legislative roll-call votes indicated that partisan activity of the 1830s and 1840s was marked by differentiation of attitudes toward corporations, banks,

paper money and reform.[10] But party policy on internal improvements could not withstand the lure of better facilities provided at public cost: both Democrats and Whigs sought canals and railroads for their constituents. At the national level roll-call analyses by Thomas Alexander and Joel Silbey showed that both parties maintained high levels of cohesion so long as public business provided a varied fare of political issues.[11]

Michael Holt's Political Crisis of the 1850s synthesized these political studies.[12] Holt found the Whig argument that inadequate private resources required government support to enterprise in the form of corporate charters, tariffs and subsidies lost its partisan appeal in the 1850s due to changes in the economic climate.[13] He contended that particular economic issues had been swept away at the national level, and that new state constitutions had eliminated a number of important economic distinctions at the state level as well. Holt concluded that by 1852 interparty conflict on most legislative matters had disappeared.

Historians who studied ideological concerns in debates over economic policy had identified transportation as an important sector in the government-supported economy. Political historians were less inclined to differentiate sectors of the economy benefited by the political process. Their interpretations generally identified partisan policy as supporting (or not) a broad range of economic activities:

banks, corporations, railroads and tariffs. Only when investigators isolated issues by the analysis used, for example roll-call voting behavior, could political attitudes toward specific transportation systems be identified.

Legal historians also studied the impact of law on transportation, but couched their analyses in legal categories such as contract, corporation and property law, and neglected possible distinctions in doctrine regarding different transportation systems. While Hurst's books dealt interpretatively with process and expectations, Lawrence Friedman synthesized the monographic literature with nineteenth-century legal commentaries and decisions in the Northeast in A History of American Law.[14] Stanley Kutler's case study of the Charles River Bridge underscored instrumentalism's distinction between active and static capital.[15] Kutler found that Chief Justice Taney's opinion in the Charles River Bridge case recognized the tension between vested interests on the one hand, and new forms of property on the other, and resolved the dispute on the basis of community needs. "Creative destruction" allowed the public to benefit at the expense of the "privileged." But the competing bridges in the case were identical and the importance of the decision rested on the concept of venture capital, not technological evolution.

Horwitz's The Transformation of American Law sustained Kutler's refinement of instrumental law supporting venture capital.[16] Horwitz showed that commercial interests doubly

benefited from instrumentalism: not only by specific promotional statutory grants and legal opinions, but also by the political choice of those devices rather than taxation. Avoiding taxation kept issues away from public debate, and at the same time spread the cost of development across the entire community. Yet Horwitz found monopoly grants to private corporations (particularly transportation corporations) foundered as exclusive privileges stymied economic growth. According to Horwitz by the 1830s judges and commentators favored increasing competition as the best means to economic development, and monopolistic charters were curtailed.

Other studies also supported Hurst's instrumental concept. Leonard Levy's study of the jurisprudence of Lemuel Shaw of the Supreme Judicial Court of Massachusetts included an extensive analysis of the Chief Justice's contribution to American railroad law.[17] Levy found that Shaw consistently weighed the interests of the public against the chartered powers and privileges of railroad corporations. When railroad interests corresponded to broad community interests, he interpreted public grants to railroads broadly. But if railroad interests conflicted with the greater needs of the community, Shaw interpreted their charters narrowly. Paul Kurtz, in a study of decisions of nineteenth-century equity courts, discovered that substantive and procedural law increasingly favored the entrepreneur, and presented few obstacles to economic

expansion.[18] In nuisance law Kurtz identified explicit judicial balancing of interests that included consideration of public interest generally to the entrepreneurs' benefit.

Historians have also considered the contribution of professional expertise to the development of transportation systems. This literature falls into two categories: the administrative history of individual improvements where such expertise was implicitly considered as part of institutional development;[19] and professional and institutional histories where this expertise was seen to contribute directly to internal improvement success.[20]

Forest Hill adopted the latter approach in Roads, Rails and Waterways: The Army Engineers and Early Transportation.[21] To Hill civil engineering in the early national period was a critical factor in internal improvement development. Federal participation in internal improvements consisted of training, western exploration and mapping, loaned services to state and private endeavors, and after the passage of the General Survey Act (1824), technical planning. Daniel Calhoun addressed the role of the engineer, in a broader, socio-political frame of reference.[22] Calhoun found that professional engineers served on the leading edge of much of nineteenth-century economic change until the panic of 1837 and its aftermath placed their positions at the mercy of political patronage.[23]

Finance and planning also represented important components of the expertise necessary to launch and maintain successful internal improvement projects. Nathan Miller's Enterprise of a Free People and Harry Scheiber's Ohio Canal Era analyzed the economic policies of New York and Ohio.[24] Miller examined how the Erie Canal Fund Commissioners successfully managed the fund not only to build the canal but also to serve as a development bank for other projects in the state. According to Scheiber, Ohioans called for a systematic ordering of growth: canal commissioners developed a rational policy by means of route development and rate-making. But by the 1840s the advocates of equalizing benefits among all regions had gained ascendence in both New York and Ohio. Later policies based on special charters demonstrated that "public interest" had been redefined on a local, not statewide basis.

For the most part historians have discussed government participation in the economy as promotional--not only that government aided in the growth of the economy, but also that such growth was inherently good. There were, however, shadings in that assessment. Hurst's use of the pejorative "bastard" pragmatism as the underlying attitude toward distribution of public resources emphasized his belief that economic decisions had not been tempered by sufficient concern for the future. Implicit in Hurst's criticism was the assumption that a systematic formulation and execution

of policy by professional administrators would have provided less wasteful, more rational social choice.

Horwitz and Kurtz were even more critical. While Hurst's model of public policy found enlightened government function at the mercy of decision by "drift and default," Horwitz and Kurtz postulated a conspiracy of merchants and lawyers set on aggrandizement at public expense. One step further away from promotion as good government, Gabriel Kolko contended that even when bureaucratic regulation developed, it was "captured" by the regulated interest to meet its own end.[25]

Hurst and Kolko both suggested that regulation by administrative agency could (and should) have constrained unfettered government promotion of economic growth. Kolko's works also raised the complementary element of time in the analysis of government promotion-regulation of the economy. Most of the historians discussed above who studied government promotion of the economy restricted their efforts to the early national period, spanning from the revolutionary era to the Civil War.[26] Examinations of the growth of the regulatory state generally only dealt with the period after the Civil War.[27] All of the studies concluded that state and national governments promoted economic development in the first half of the nineteenth century, and they either explicitly or implicitly identified the importance of government aid in the transportation sector to the overall picture of the interaction of nineteenth century

law and the economy. Most of them also concluded that at some point in the second half of the century the positive role of government began to change to a negative, regulatory one.[29]

Historians have demonstrated that in the first half of the nineteenth century national, state and local governments funded internal improvements, and courts at all levels rendered decisions that favored capital ventured in turnpikes, canals, steamboats and railroads. But historians viewed the improvements themselves as waves of succeeding technological advances: goods and passengers were transported more quickly on improved roadways, then canals and steamboats, and later railroads. If improvement succeeded improvement, did public policy favor one technology over another? Did Hurst's instrumentalism release creative energy to support the newer and faster forms of transport?

The analyses discussed above assumed that since transportation technology advanced spectacularly in the nineteenth century, the law must have provided the impetus. But at no point have historians addressed the interaction of law and transportation choice. In the 1940s and 1950s historians chose as their analytical frame the concept of law and the economy, and investigated the ideology behind government promotion. They found pervasive public policy support for the economy, but their categories of analysis were sufficiently broad (corporations, industry, reform,

debt) to leave internal improvements undifferentiated. Political historians arrived at similar results on the few occasions when they addressed internal improvements: their findings either lumped together all public support of transportation, or isolated votes on single transportation issues such as the National Road, state canal systems or the Illinois Central land grant.

Legal historians hardly acknowledged the differences between types of transport. From their perspective, there was no need to single out modes of travel: charter provisions and liabilities were essentially the same. Nor did they probe doctrinal distinctions between improvements, or (in conflicts between improvements), whether decisions favored one system over another. Where the state actually owned and operated the improvement, as in the cases of the canals of New York, Pennsylvania and Ohio, historians concentrated their efforts on waxing and waning legislative support, debt crises, and administration. When the public clamored for railroads, the special status of the state as owner of the canal made resolution of the conflict irrelevant more broadly.

Forest Hill's Roads, Rails and Waterways offered the most germaine treatment of how public policy treated different transportation technologies. Hill identified federal statutes which mandated technical assistance and planning for state roads and railroads, but federal construction of river and harbor improvements. At the

federal level, in terms of engineering expertise, policy distinguished between technologies.

Accurate assessment of whether public policy fostered advances in transportation demands consideration of not only the legal vehicle of instrumentalism (for example devolution of eminent domain), but also improvements in transportation technology. Douglass North's The Economic Growth of the United States and George Rogers Taylor's Transportation Revolution showed the positive contribution of transportation to the American economy.[30] North's volume emphasized the importance of the railroads' demand for iron in the growth of first a market economy, and later an industrial economy. Taylor found the economy transformed by fast, regular and cheap transport of goods and passengers. But beyond describing succeeding waves of transportation and briefly suggesting that financial aid from local, state and national governments differed according to type of internal improvement, Taylor did not consider competition between systems except in terms of routes, rates and traffic.

However routes, rates and traffic figured in the political calculus which provided support to some systems, but not to others. Citizens of towns, cities and states lobbied legislators for internal improvements on the basis of anticipated trade, and where state-owned improvments were contemplated, anticipated tolls. Studies of commercial rivalries between seaports, between western river towns, and between railroad termini contained ancillary discussions of

internal improvement promotion described in the context of local boosterism.[31]

Julius Rubin's Canal or Railroad? provided the best comparison of how different communities arrived at internal improvement policy.[32] Rubin examined the responses of citizens of Philadelphia, Baltimore and Boston to the Erie Canal. Probing their decisions to imitate or innovate, Rubin found that all three cities confronted the same Appalachian barrier to the west, considered the same alternative means of crossing it, and produced the same arguments for and against each technology. Rubin concluded that each community chose a different alternative based on the collective community attitude to uncertainty and delay.

The North, Taylor and Rubin studies presented images of the early nineteenth century economy at odds with the legal and economic studies discussed above. All three placed American technological choice in an essentially neutral economic climate. North and Taylor found causation reversed--capital ventured in transportation produced the transformation of the economy. Rubin attributed technological choice to discrete community attitudes toward uncertainty and delay which in turn led to demand for legal change, mainly in the form of statutory support.

Historians of technology and science shared the point of view that American technology advanced in an essentially laissez-faire climate, particularly when compared to European conditions.[33] In America factors such as labor

scarcity, absence of guild traditions and abundant resources led to rapid adoption and adaptation of "vernacular" design.[34] Historians of technology have also recognized the important role played by American patent law in encouraging innovation by means of protecting intellectual property; one has even gone so far as to assume that use of the patent system was prescriptive of economic growth in the United States.[35] But studies of the early nineteenth-century patent system by legal historians have shown that a further level of analysis, based on adjudication of patent validity and infringement, is necessary before the effect of patent law on technology can be ascertained.[36]

Other studies of transportation technology have also dealt with law, but isolated from the effect on the economy as a whole. In 1902, as Callender explored government aid to transportation, Jeremiah Simeon Young completed A Political and Constitutional Study of the Cumberland Road.[37] Young asserted that constitutional and political attitudes to the road pervaded all internal improvement issues until its complete surrender to the states in 1856. Young found the federal government's motive for building the road the political necessity of uniting a huge public domain. Joseph Durrenberger's complementary study on turnpikes in New York, New Jersey, Pennsylvania and Maryland examined the social conditions which brought about these state-sponsored improvements.[38]

Many studies of railroad technology have an antiquarian bent--presenting the steady progression of locomotives, and devices such as couplers and brakes.[39] However, two important contributions to understanding of railroad development discussed matters not strictly related to railroad technology. Robert Luther Thompson's Wiring a Continent shows how Supreme Court decisions regarding telegraph patents affected the growth of this public utility.[40] Thompson suggests that the Court's decision to protect the major patent claims, but restrict their scope, played an important part in how telegraph companies united. And the union of lines was crucial to safe railroad transport. Emphasizing accounting and statistical procedures, divisional organization and operational departments, Alfred Chandler's Visible Hand: The Managerial Revolution in American Business identified the management features which enabled railroads, the largest corporate structures then known, to function and to continue to grow.

The works which deal most directly with the effect of law on technology relate to steamboats. Louis Hunter in Steamboats on the Western Rivers concentrated on the development of steamboat transportation before the Civil War by analyzing the steamboat as both an economic instrument and a business institution.[41] Although not primarily interested in the relationship of law to transportation on the western waters, Hunter nonetheless covered important cases affecting the development of steam navigation and the

federal steamboat inspection laws of 1838 and 1852. The latter, discussed in a long chapter entitled "Movement for Steamboat Regulation" has been complemented by John G. Burke's "Bursting Boilers and the Federal Power."[42] Burke's article traces the contribution of professional scientific inquiry into causes of steamboat accidents on subsequent lobbying of Congress for effective laws.

Hurst and others have viewed early nineteenth-century law as supporting the release of creative energy to benefit society. Public demand for internal improvements and positive laws sponsored advances in transportation technology. But competition for funds and traffic led to conflicts between improvements. These conflicts involved both competing systems of transportation and also outright obstruction of one system by another, for example where land traffic crossed navigable waterways.

By the middle of the nineteenth century advances in bridge design permitted the continual passage of land traffic over navigable waters. Expanding railroads demanded the right to cross rivers to create rail networks. At the same time bridge engineers overcame problems of span and height caused by longer, taller and faster steamboats. Suspension bridges spanned great distances without hazardous piers; moveable spans temporarily opened unobstructed channels. An important and well-publicized example of the new technology was the Wheeling and Belmont Wire Suspension Bridge.

The Wheeling Bridge, constructed between 1847 and 1849 at Wheeling, Virginia, was the first span to exceed 1,000 feet. Described as "an honor to our country," the Wheeling Bridge and similar spans were hailed as engineering marvels in the first half of the nineteenth century.[46] Although they provided great length of span, they did not accommodate moveable sections. In order to permit the regular flow of water traffic, suspension bridges had to provide sufficient vertical clearance for boats to pass, or they had to be located above the head of navigation.

The Wheeling Bridge design allowed a maximum of ninety feet clearance at low water on the Wheeling bar. The proprietors of the bridge and the Virginia legislature felt this height left the Ohio River unobstructed; Pittsburgh steamboat interests and the State of Pennsylvania did not. In cases argued before the U.S. Supreme Court between 1850 and 1856, opposing counsel presented the points of view of investors in competing internal improvments. Their arguments show that government policies at both the state and federal levels divided over the relative merits of land and water transportation. How the Court, Congress and the states resolved the conflict inherent in government support of both land and water transportation sheds new light on the role played by law in the evolution of transportation technology and on the limitations of Hurst's notion of the release of creative energy.

Notes

1. James Willard Hurst, Law and the Conditions of Freedom in the Nineteenth-Century United States (Madison, WI: University of Wisconsin Press, 1956).

2. James Willard Hurst, Law and Social Process in United States History (Ann Arbor, MI: University of Michigan Press, 1960).

3. Guy S. Callender, "The Early Transportation and Banking Enterprises of the States in Relation to the Growth of Corporations," Quarterly Journal of Economics. 18 (1902): 159.

4. Oscar Handlin and Mary Flug Handlin, Commonwealth: A Study of the Role of Government in the American Economy, Massachusetts, 1774-1861 (Cambridge, MA: Harvard University Press, 1947).

5. Louis Hartz, Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948).

6. Milton Sidney Heath, Constructive Liberalism: The Role of the State in Economic Development in Georgia to 1860 (Cambridge, MA: Harvard University Press, 1954); and James Neal Primm, Economic Policy in the Development of a Western State: Missouri, 1820-1860 Cambridge, MA: Harvard University Press, 1954).

7. Carter Goodrich, Government Promotion of American Canals and Railroads, 1800-1890 (New York: Columbia University Press, 1960).

8. Progressive historians of the first half of the twentieth century had interpreted partisan activity in both regional and class frameworks. Frederick Jackson Turner's sectional conflict of the democratic West versus the capitalist Northeast and aristocratic South complemented other progressives' conflict between the democracy of workers and small farmers, and privileged elites. These frameworks merged in Arthur M. Schlesinger, Jr.'s Age of Jackson (Boston: Little, Brown, 1945) into a liberal-conservative encounter. According to Richard L. McCormick in "The Party Period and Public Policy: An Exploratory Hypothesis," Journal

of American History 66 (1979): 279, Schlesinger and his predecessors had assumed a responsible-party-government model which presumed a direct relationship between party leaders who advocated and received votes based on specific programs and subsequently enacted government policies.

9. Bray Hammond, Banks and Politics in America: From the Revolution to the Civil War (Princeton, NJ: Princeton University Press, 1957). Hammond studied executive action and the Second Bank of the United States. He found that Jackson's veto of the bank charter did not represent a democratic struggle against monopoly, but the interests of a coalition of speculators who resented the bank's regulatory power.

Other historians analyzed voter behavior and found that shared cultural values served as better predicters than class and economic attitudes in determining partisan choice. These ethnocultural historians found that political rhetoric on economic issues was only successful when coupled with ethnoreligious keywords. Their analyses apparently disproved the socio-economic determinant of party composition and associated partisan choice with local cultural issues.

The ethnocultural interpretation has produced many books and articles, including Lee Benson, The Concept of Jacksonian Democracy: New York a Test Case (Princeton, NJ: Princeton University Press, 1961); Paul Kleppner, Cross of Culture: A Social Analysis of Midwestern Politics, 1850-1900 (New York: Free Press, 1970); Michael Fitzgibbon Holt, Forging a Majority: The Formation of the Republican Party in Pittsburgh, 1848-1860 (New Haven, CT: Yale University Press, 1969); and William G. Shade, Banks or No Banks: The Money Issue in Western Politics, 1832-1865 (Detroit: Wayne State University Press, 1972).

10. Herbert Ershkowitz and William G. Shade, "Consensus or Conflict? Political Behavior in the State Legislatures during the Jacksonian Era," Journal of American History 58 (1971): 591-621.

11. Thomas B. Alexander, Sectional Stress and Party Strength: A Study of Roll-Call Voting in the United States House of Representatives, 1836-1860 (Nashville, TN: Vanderbilt University Press, 1967) indicated that only when economic and slavery-oriented questions predominated in the 1850s was party discipline overwhelmed and sectional loyalty triumphant. Joel H. Silbey, The Shrine of Party: Congressional Voting Behavior, 1841-1852 (Pittsburgh, PA: University of Pittsburgh Press, 1967) demonstrated that in the 1840s congressmen clung tenaciously to national political divisions.

12. Michael F. Holt, The Political Crisis of the 1850s (New York: John Wiley and Sons, 1978).

12. Ibid. 104-112. First, the economic boom of the period from 1848 to 1852 transformed the economy and brought even stalwart Democrats to demand new banks and corporations. At the same time economic prosperity and the availability of both domestic and foreign capital undermined the rationale for the Whig economic program. Whig demand for a high protective tariff lost its saliency when manufacturers' profits rose during the boom. Whigs and Democrats alike also pushed for lower tariff rates on railroad iron as both parties jumped to promote rail lines for their constituents.

14. Lawrence M. Friedman, A History of American Law (New York: Simon and Schuster, 1973).

15. Stanley I. Kutler, Privilege and Creative Destruction: The Charles River Bridge Case (Philadelphia: J.B. Lippincott, 1971).

16. Morton J. Horwitz, The Transformation of American Law, 1780-1860 (Cambridge, MA: Harvard University Press, 1977).

17. Leonard W. Levy, The Law of the Commonwealth and Chief Justice Shaw (Cambridge, MA: Harvard University Press, 1957), 118-139.

18. Paul M. Kurtz, "Nineteenth Century Anti-Entrepreneurial Nuisance Injunctions--Avoiding the Chancellor," William and Mary Law Review 17 (1976): 621-671.

19. For example: Walter S. Sanderlin, The Great National Project: A History of the Chesapeake and Ohio Canal Studies in Historical and Political Science, series 64 (Baltimore: Johns Hopkins University Press, 1946); Edward Hungerford, The Story of the Baltimore and Ohio Railroad, 1827-1927, 2 vols. (New York: G.P. Putnam's, 1929); Wayland Fuller Dunaway, History of the James River and Kanawha Company, Studies in History, Economics and Public Law, no. 236 (New York: Columbia University Press, 1922); George H. Burgess and Miles C. Kennedy, Centennial History of the Pennsylvania Railroad Company, 1846-1946 (Philadelphia: Pennsylvania Railroad Company, 1949).

20. Forest G. Hill, Roads, Rails and Waterways: The Army Engineers and Early Transportation (Norman, OK: University of Oklahoma Press, 1957); Daniel J. Elazar, The American Partnership: Intergovernmental Cooperation in the Nineteenth-Century United States

(Chicago: University of Chicago Press, 1962); and Daniel Hovey Calhoun, The American Civil Engineer: Origins and Conflict (Cambridge, MA: M.I.T. Press, 1960).

21. Hill, Roads, Rails and Waterways.

22. Calhoun, Civil Engineer.

23. Calhoun found that Democrats, who favored the practical man, defended the contractor, especially the small contractor, against the engineer and corporation. Democrats tended to demand economy in the form of reduction of expenses, and while not hostile to internal improvements, wanted projects directed for and by local interests. Whigs, while not denying practical values, pushed the role of the scientific engineer whose accomplishments included not only the improvements themselves, but often large savings due to scientific solutions to expensive engineering problems. Whigs defended "true" as opposed to "false" economy, and favored large-scale construction, through routes, and project planning and selection. See Calhoun, Civil Engineer, 177-181.

24. Nathan Miller, The Enterprise of a Free People: Aspects of Economic Development in New York during the Canal Period, 1792-1838 (Ithaca, NY: Cornell University Press, 1962); and Harry N. Scheiber, Ohio Canal Era: A Case Study of Government and the Economy, 1820-1861 (Athens, OH: Ohio University Press, 1969).

25. Gabriel Kolko, The Triumph of Conservatism, A Reinterpretation of American History, 1900-1916 (New York: Free Press, 1963); and Gabriel Kolko, Railroads and Regulation, 1877-1916 (Princeton, NJ: Princeton University Press, 1965).

26. These included the Handlins, Hartz, Heath, Primm, Hammond, Scheiber and Horwitz.

27. Kolko, Railroads and Regulation; Kolko, Triumph of Conservatism; Lee Benson, Merchants, Farmers and Railroads: Railroad Regulation and New York Politics, 1850-1887 (Cambridge, MA: Harvard University Press, 1955); Robert S.Hunt, Law and Locomotives: The Impact of the Railroad on Wisconsin Law in the Nineteenth Century (Madison, WI: State Historical Society of Wisconsin, 1958); Albro Martin Enterprise Denied: Origins of the Decline of American Railroads, 1897-1917 (New York, Columbia University Press, 1971). See also Thomas K. McCraw, "Regulation in America: A Review Article," Business History Review 49 (1975): 159-183. Studies by Hurst, Goodrich, Friedman and Kurtz spanned

the entire century but used similar chronologies.

29. In the works sponsored by the Committee on Research in Economic History, effective regulation was assumed to have appeared after the period fo study (about 1860): the Handlins found no regulation of the Massachusetts economy; Hartz found Pennsylvania's regulatory measures so cumbersome that they failed almost immediately. The general tenor of other studies was that either there was no regulation in the first half of the nineteenth century, or that it was ineffective or corrupt. In sum, inadequate government regulation left the public interest unprotected.

This chronology fit well with the organizational synthesis which posited a break between the promotional activities of governments in the first two-thirds of the nineteenth century and regulatory measures invoked in the last third of the century. For example see Robert Wiebe, The Search for Order 1877-1920 (New York: Hill and Wang, 1967); Alfred D. Chandler, Jr., The Visible Hand: The Managerial Revolution in American Business (Cambridge, MA: Harvard University Press, Belknap Press, 1977); and Stephen Skowronek, Building a New American State: The Expansion of National Administrative Capacities, 1877-1920, (Cambridge: Cambridge University Press 1982).

30. Douglass C. North, The Economic Growth of the United States, 1790-1860 (New York: Norton, 1966); George Rogers Taylor, The Transportation Revolution 1815-1860 vol. 4 of The Economic History of the United States (New York: Holt, Rinehart and Winston, 1951).

31. Robert Greenhalgh Albion, The Rise of New York Port, 1815-1860 (New York: Scribner's, 1939); Charles N. Glaab, Kansas City and the Railroads: Community Policy in the Growth of a Metropolis (Madison, WI: Historical Society of Wisconsin, 1962); James Morton Callahan, "The Pittsburgh-Wheeling Rivalry for Commercial Headship on the Ohio," Ohio Archaeological and Historical Publications 22 (1913): 40-54; Charles Henry Ambler, A History of Transporttion in the Ohio Valley (Glendale, CA: Arthur H. Cole, 1939); James Weston Livingood, The Philadelphia-Baltimore Trade Rivalry, 1780-1860 (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1947); Edward Chase Kirkland, Men, Cities and Transportation, A Study in New England History, 1820-1900 (Cambridge, MA: Harvard University Press, 1948); Daniel J. Boorstin, The Americans: The National Experience (New York: Vintage Books, 1965), 115-168.

32. Julius Rubin, Canal or Railroad? Imitation and Innovation in the Response to the Erie Canal in

Philadelphia, Baltimore and Boston, Transactions of the American Philosophical Society, n.s. 51, pt. 7 (Philadelphia: 1961).

33. John A. Kouwenhoven, Made in America: The Arts in Modern Civilization (New York, Doubleday, 1949); Roger Burlingame, March of the Iron Men (New York: Scribner's, 1938); Lewis Mumford, Technics and Civilization (New York: Harcourt, Brace and Company, 1934); Siegfried Giedion, Mechanization Takes Command: A Contribution to Anonymous History (Oxford: Oxford University Press, 1948).

34. Kouwenhoven, Made in America, 15.

35. Jacob Schmookler, Invention and Economic Growth (Cambridge, MA: Harvard University Press, 1966). Nathan Reingold and Robert C. Post have taxed the apparently facile conclusions based on numbers of patents issued. They have demonstrated that changes in gross numbers of patents as well as proportions of patents issued to applications submitted can be attributed as much to changes in staff and management as to the level of inventiveness of the population. Nathan Reingold, "U.S. Patent Office Records as Sources for the History of Invetion and Technological Property," Technology and Culture 1 (1960): 156-157 and Robert C. Post "'Liberalizers' versus 'Scientific Men' in the Antebellum Patent Office," Technology and Culture 17 (1976): 24-54.

36. Studies by Frank D. Prager and Carl B. Swisher indicate that inventors used the courts in two ways. From 1793 to 1836 (while the Secretary of State granted patents by registration) the courts were the only means available by which inventors could establish patentability and validity. With the creation of the Patent Office and the examination of claims, litigation decreased and the anticipated benefits of patents appeared to flow more directly to inventors. But even the lower proportion of patents granted did not preclude litigation. Frank D. Prager, "Historic Background and Foundation of American Patent Law," American Journal of Legal History 5 (1961): 309-325 and "Trends and Developments in American Patent Law from Jefferson to Clifford (1790-1870)," American Journal of Legal History 6 (1962): 45-63; Carl B. Swisher, The Taney Period 1836-64, vol. 5 of History of the Supreme Court of the United States (New York, Macmillan, 1974), 484-511.

37. Jeremiah Simeon Young, A Political and Constitutional Study of the Cumberland Road (Chicago: University of Chicago Press, 1902).

38. Joseph Austin Durrenberger, Turnpikes: A Study of the Toll Road Movement in the Middle Atlantic States and Maryland (Valdosta, GA: the Author, 1931).

39. Edwin P. Alexander, Iron Horses: American Locomotives 1829-1900 (New York: Norton, 1941); and August Mencken, The Railroad Passenger Car: An Illustrated History of the First Hundred Years (Baltimore: Johns Hopkins University Press, 1957).

40. Robert Luther Thompson, Wiring a Continent: The History of the Telegraph Industry in the Untied States 1832-1866 (Princeton, NJ: Princeton University Press, 1947).

41. Louis C. Hunter, Steamboats on the Western Rivers: An Economic and Technological History (Cambridge, MA: Harvard University Press, 1949). In 1975 Haites, Mak and Walton refined Hunter's conclusions regarding the decline of steamboating. Erik F. Haites, James Mak and Gary M. Walton, Western River Transportation: The Era of Early Internal Development, 1810-1860 Studies in Historical and Political Science, series 93, no. 2 (Baltimore: Johns Hopkins University Press, 1975).

42. John G. Burke, "Bursting Boilers and the Federal Power," Technology and Culture 7 (1966): 1-23.

43. Scientific American, November 3, 1849. Other important suspension spans of the first half of the nineteenth century include: Fribourg Bridge, Switzerland; Menai Straits Bridge, England; Fairmont Bridge, Philadelphia; and Niagara Bridge, New York.

CHAPTER II
INTERNAL IMPROVEMENTS AND THE AMERICAN CONSTITUTIONAL TRADITION

The Wheeling and Belmont Wire Suspension Bridge connected two sections of the Cumberland (National) Road and carried the first land traffic over a navigable western waterway. Built in response to public demand at Wheeling for a convenient crossing, the bridge also represented the larger community concern for efficient interchange of western produce and eastern merchandise by the new technology of the railroad. River interests soon recognized the bridge as an immediate physical threat to navigation along the Upper Ohio River and as a symbol of future obstructions. The conflict which developed over whether the Wheeling bridge obstructed navigation also formed part of the continuing struggle between commercial interests at Philadelphia, Baltimore and Richmond to cross the Alleghany barrier and capture western trade. In 1849 contending transportation interests in Pennsylvania and Virginia, backed by public investment and support, asked the Supreme Court to decide whether the Wheeling bridge obstructed river traffic. In the ensuing Wheeling Bridge case the Court considered the vested rights in navigation challenged by the new venture of a bridge within the framework of the American constitutional tradition.

In the period before the Civil War public demand for transportation facilities called for government support of internal improvement projects. While the nature of this support was much the same, mechanisms at the local, state and national levels varied. During the colonial period local governments had been assigned responsibility for roads, ferries and bridges in their jurisdictions. Later, state governments assumed responsiblity for longer or significantly improved routes, either directly through state expenditure or indirectly by means of state charters for internal improvement corporations. Government ownership and operation of improvements represented the major variation among state policies. Federal support for internal improvements varied according to the government's role as owner or trustee of the site of the improvement.[1]

In 1632 the General Assembly of Virginia passed the first act in British North America providing for internal improvement. The law directed "highways" to be laid out according to the needs of parishioners and by the direction of commissioners of the monthly courts.[2] In 1657 the Assembly lodged responsibility for surveying and maintaining roads and bridges in county road surveyors, "respect being had to the course used in England to that end."[3] Maryland's first road law, "An Act for making high wayes and making heads of Rivers, Creekes, Branches and Swamps passable for horse and ffoote," indicated the goal of these seventeenth-century laws: providing a public way sufficient for a man

on horseback to cross the necks of land between navigable rivers and creeks.[4] Early highways were little more than paths through forests, connecting the colonist to his courthouse, church, mill and market, and intended to complement the primary mode of travel by boat. As in England roads were a local matter, surveyors were appointed by the county court, and each parish or township provided workmen from among its taxpayers to clear roads and build bridges.

During the eighteenth century settlers' attitudes about responsibility for internal improvements shifted as lines of communication lengthened, as obstacles to be surmounted surpassed local capabilities, and as potential benefits expanded beyond local horizons to encompass colony-wide and subsequently country-wide impact. As more land was cultivated and new counties formed, road patterns developed above the fall line of navigable rivers. Increasing back-country production required wagons to haul harvests to market and brought about the demand for roads suitable for wagon traffic. In the Tidewater rivers served as the major east-west lines of communication; in the Piedmont roads took over the east-west function. Maryland's road law of 1704 provided that "all public and main roads are to be hereafter cleared and well-grubbed, fit for travelling, twenty-foot wide; and good and substantial bridges made where such are necessary, at the discretion of the County Courts."[5] As settlers moved farther inland, the developing lines of

communication to the colonial capitals exceeded local government and taxpayers' energies. Petitioners asked for cooperation from neighboring counties (often for support of ferries across streams forming common boundaries) and for financial aid from colonial governments.[6]

Most of the trade from the Shenandoah Valley had gone north to Philadelphia in the absence of roads eastward over the Blue Ridge.[7] After the French and Indian War colonial governments recognized that roads connecting to the Shenandoah Valley would offer advantages to everyone.[8] For example, petitions from Frederick and Hampshire counties requested that the Virginia government repair the military road built by General Edward Braddock during his campaign against Ft. Duquesne. Impressed by the possibility to increase its share of Indian trade and to sell supplies to the garrison at Ft. Pitt, the legislature appointed trustees to supervise the project and authorized the expenditure of L200.[9]

The advent of the revolution postponed consideration of internal improvements at the state level and greatly reduced activity at the county level as men joined armies or increased their production to compensate for neighbors who joined. Military operations did not greatly affect the roads of North America since the poorly equipped armies (in terms of horses and vehicles) had few needs beyond the foot traveller's. Those guerrilla units noted for speed tended to be small, operated within a restricted area, and took

advantage of their superior knowledge of existing transportation facilities.

Intercolonial transportation during the war generally extended north and south near the coast. For the most part the British relied on their command of the sea and sent supplies and news by ship; the colonists were forced to rely on slower land communication. The war in the West was isolated both geographically and in terms of manpower: with the exception of movement through the New York valleys, troops did not cross the mountains but remained on one side or the other. British sea power, by reducing transatlantic supplies and compelling the colonists to exchange necessities with one another, forced Americans to recognize the inadequacy of intercolonial transportation routes.

During the revolution the general government was too weak and poor to improve transportation facilities. While government under the Articles of Confederation may be said to have failed on a number of fronts, it did produce successful settlement of the western lands question. The cession of western lands by New York and Virginia in 1781 and 1784 created a national property in the West which was to be developed for the benefit of all states in the Confederation.[10] These cessions led to the organization of the Northwest Territory, and the provision for land survey and sale. Further, the Northwest Ordinance of 1787 stated that "the navigable waters leading into the Mississipppi and St. Lawrence, and the carrying places between the same,

shall be common highways, and forever free, as well to the inhabitants of the said territory as to the citizens of the United States . . . ."[11] The ceded land was not only common property and the concern of all of the states, but also the waterways of the Northwest, at the time the only transportation routes, became common property.

Under the Articles the new states continued to act independently with regard to commerce, making a mutually beneficial transportation network nearly impossible. Even the creation of an effective national post office failed due to the absence of passable roads. Although apparently powerless to develop a system, the new state and national governments embraced a rough form of mercantilism which recognized the need to communicate with the back settlements for both control and development. Control was essential to keep the British and Spanish from claiming disputed territory and from inducing westerners to become their allies.[12] Eastern aid in the development of the West would encourage the shipment of western goods to eastern markets and provide mercantile ties in addition to government ones. Westerners had "no other means of coming to us but by long Land transportation and unimproved roads . . ." but "smooth the road once, and make it easy for them, and then see what an influx of articles will be poured upon us . . . and how amply we shall be compensated for any trouble and expence we may encounter to effect it."[13] Delegates sent to the Constitutional Convention in 1787 recognized the need to

strengthen the government, particularly in the areas of communication and trade. Their agendas included reconciliation of conflicting state commerce and navigation policies, and provision for better interstate communication.

Although citizens of the new nation perceived that an adequate transportation network was beyond the capacity of local and state government, and that the benefits of an improved system would accrue to the nation at large, the delegates at Philadelphia gave internal improvements only cursory attention. Creating a new and innovative government exercised most of their energies. What discussion of internal improvements occurred was ancillary to other issues. For example, on September 14 Benjamin Franklin moved to add "a power to provide for cutting canals when deemed necessary" to the clause to establish post offices and post roads.[14] James Madison then proposed amending Franklin's canal motion to state that Congress could "grant charters of incorporation where the interest of the U.S. might require and the legislative provisions of the individual States may be incompetent."[15] The ensuing debate recognized that Madison's choice of words had opened the charter provision beyond canals to include the possibility of bank and mercantile monopolies. At the suggestion of George Mason of Virginia, Madison's amendment was limited to canals only, and it was with such wording that the proposal failed.[16]

Discussion at the convention of other clauses which would subsequently be used as rationales for federal internal improvement support do not reveal that the delegates foresaw any potential applicability. Debate on the commerce clause did not cover its implications for internal improvement construction by the national government, although some members of the convention felt that the power to regulate included the power to facilitate. Nor did discussion of clauses which provided for the common defence, promoted the general welfare, or made needful rules and regulations for the territories clarify the intent of the framers regarding internal improvements. When completed, the new Constitution did not empower a particular level of government to construct internal improvements; on the other hand the power was not forbidden to any level. It remained for the leaders of local, state and national governments to distribute the responsibilities for internal improvement needs.

While the founding fathers debated the role of the federal government in national life, the state legislatures received increasing numbers of petitions from westerners asking for state aid for internal improvements. Increased interdependency of large agricultural regions and seaports, an expanding market economy, and continuing settlement of the back-country demanded better, longer roads--the turnpikes of the late eighteenth century.[17] Turnpike promoters lobbied legislatures for charters which would

allow subscribers to profit on their investments. When the legislatures granted charters, they listed not only the obligations of the subscribers, but also the privileges of the new organizations--the right of eminent domain and the ability to collect tolls. In addition to length, many turnpikes offered their customers direct routes, better gradients, solid stone roadbeds with gravel dressings, and bridges. Where turnpikes were seen to be in the state interest, they were built at state expense. Similar charter provisions were also used by legislatures to enable corporations to build canals.[18]

Delegates to the Constitutional Convention had neglected to empower either federal or state government to construct internal improvements. Acting on the assumption that the Constitution reserved such power to the states, state legislatures provided for new roads and canals by chartering private corporations to act on the public behalf. But some Congressmen also envisoned federal internal improvements. In the thirty years following ratification of the Constitution, Congress returned again and again to proposals for a transportation system. Three of the planning documents prepared by administration members at the request of the national legislature indicate the scope of works contemplated and the assumptions underlying federal action.

In his opening address to the second session of the first Congress, President George Washington touched on the issue of internal improvements when he discussed the

necessity of domestic manufactures. Immediately afterwards the House of Representatives requested that the Secretary of the Treasury prepare a report on the state of domestic manufactures. Alexander Hamilton's Report on Manufactures surveyed the methods used in other countries to promote manufactures, and found that facilitating transportation was an important part of European programs.[19] According to Hamilton nothing had done more to assist the manufactures of Great Britain than public road improvements and canals. There was "no object, more worthy of the cares of local administrations" than good transportation, "and it were to be wished, that there was no doubt of the power of the national Government to lend its direct aid, on a comprehensive plan."[20] Hamilton concluded that internal improvements "could be prosecuted with more efficacy by the whole" than by the parts of the nation.[21]

By 1807, when it seemed that Hamilton's statement on the advantages of federal action was all but forgotten, Congress again requested that the executive branch prepare proposals for a national system of internal improvements in anticipation of a treasury surplus.[22] In April 1808 Secretary of the Treasury Albert Gallatin transmitted his Report on the Subject of Public Roads and Canals to the U.S. Senate.[23] He proposed a national system of four complementary components including a great north-south turnpike from Maine to Georgia parallelling a system of intercoastal canals; the east-west improvement of four great

Atlantic rivers by canals, and the connection of these rivers by turnpikes to four corresponding western rivers; in the northwest the connection of Atlantic rivers with the Great Lakes; and local improvements in states not benefiting from the other three components. Gallatin also incorporated in his Report the status of improvements already underway along the proposed routes, and a method of funding projects out of the treasury surplus.

By the time Gallatin's Report reached the Senate, the Embargo of 1807 had been imposed, national depression had ensued, and the anticipated surplus had evaporated. Declaration of war in 1812 proved the necessity for inland transportation: lacking foreign supplies because of the British blockade, Americans were compelled to trade among themselves with only limited access to the Atlantic coasting trade.

With the end of the war public demand for internal improvements increased, and in April 1818 the House of Representatives requested "a plan . . . for the purpose of opening and constructing such roads and canals as may deserve and require the aid of the Government."[24] In their resolution the House chose to address the Secretary of War by stating that they were concerned with the transportation of troops and munitions in time of war. John C. Calhoun responded with his report on January 7, 1819.[25]

Calhoun asserted that "a judicious system of roads and canals, constructed for the convenience of commerce, and the

transportation of the mail only, without any reference to military operations, was itself among the most efficient means for 'the more complete defence of the United States.'"[26] Having established "the intimate connexion between the defence and safety of the country and its improvement and prosperity" Calhoun next identified the three most vulnerable areas of the United States (the Atlantic, Canadian and Gulf frontiers) and proposed a system of parallel roads and inland navigation for defense and communication in time of war.[27] In the interior the Secretary felt that important lines of communication linking the West with the cities of New York, Philadelphia, Baltimore, Washington, Richmond, Charleston and Augusta would be produced by the "interest of commerce and the spirit of rivalry."[28] Calhoun stated that he had not considered how far these measures could be carried into effect by the national government, and he recognized that the measures proposed depended on that constitutional question.

For almost thirty years the question of constitutional authorization for a system of national improvements remained undecided. Congress had requested information both as to routes and funding, and the various administrations had responded; but Congress made no attempt to legislate a federally-funded system. In the meantime the country itself had changed significantly with the purchase of Louisiana in 1803 and the tremendous population growth of the West. The

Louisiana territory expanded the nation by 828,000 square miles, vast natural resources, the Mississippi River and the port of New Orleans. Liberal purchase terms for western lands and the understanding that self-government and eventual statehood would be bestowed on organized territories with sufficient populations encouraged additional settlement.

Prior to purchase of the new area concern for good transportation routes was based on the desire to deliver the products of the countryside to eastern markets at a reasonable price and to provide the back-country with the necessities of salt, spices, sugar and manufactured goods. But the low value of western products relative to their bulk made transportation costs eastward across the mountains prohibitive.[29] Land traffic was essentially one way, east to west, and proposals for transappalachian canals represented the first significant attempt to reverse some of this east-to-west traffic. The purchase of Louisiana maintained the westward flow of traffic which could continue down the Ohio and Mississippi rivers. At the same time war in Europe increased the demand for American foodstuffs--the products of the back-country. The clamor for improved east-west communication had in the past been heard primarily from the West, now eastern seaports added their cries for better roads and new canals to the interior in order to syphon-off part of the produce going downriver to New Orleans.[30]

Although the demands for better transportation facilities reached Congress, very few federal projects were constructed. Until the constitutional question was settled, only those improvements which could be justified by specific constitutional sanction were built at national expense: roads connected forts in the territories to eastern settlements, and lighthouses on the coast protected shipping.[31] In authorizing road construction Congress relied on its power to prepare needed rules for the territories, its ability to sell public lands (and incidentally provide access to them), and the necessity of providing for the common defense.[32] The latter authority was much enhanced by the War of 1812 and the need to supply troops on the northern and western frontiers fighting both the British and the Indians. Even authorization for these national roads was incremental, averaging less than one project per year over the entire period.[33]

The most significant change of interpretation regarding constitutional authority for federal internal improvements during the era resulted from Albert Gallatin's proposal for the Cumberland Road, which had been brought about by the application of Ohio settlers for statehood. As the first state carved out of the Northwest Territory, Ohio would serve as the model for the admission of other states. An important consideration in the admission of Ohio was the disposition of public lands; equally important was the need for a road connecting the new state capital to the national

capital. The compact proposal approved by Ohio in 1802 contained the provision that two percent of the net proceeds of federal land sales in the state, after deducting expenses, would be applied to building roads from the navigable rivers emptying into the Atlantic "to . . . and through" the state.[34] The Ohio legislature would direct the expenditure of another three percent.

Here was a way to use federal funds from land sales in the Northwest to finance internal improvements not only in the Northwest, but also in other states which were willing to authorize federal construction projects within their boundaries. By using the extraconstitutional argument that the Northwest Ordinance represented a compact between the states as individual sovereignties, internal improvements developed in conjunction with statehood agreements would avoid the question of constitutional authority. As a device for improvements in the states carved out of territories, members of Congress and Presidents Thomas Jefferson, James Madison and James Monroe accepted its legitimacy. For the pre-existing states the question immediately arose whether state acquiescence to federally-funded internal improvements could confer legitimacy on congressional action.

In 1817 Congress confronted the issue. The Bonus Bill of that year provided that the $1.5 million bonus for the charter of the second Bank of the United States and the government's annual dividends from the bank would be pledged "for constructing roads and canals and improving the

navigation of water courses, in order to facilitate, promote and give security to internal commerce . . . and to render more easy and less expensive the means and provisions for the common defense."[35] Part of the rationale for the proposal was that many of the improvements contemplated were too large for the resources of individual states and some were of such a nature, "that the rival jealousy of the States, if left alone, might prevent" them.[36]

As sentiment in the House turned against the bill, Henry Clay, stepping down from the Speaker's chair, tried to evade the constitutional issue (and save the bill) by answering an opponent "that the power [to construct internal improvements] was not now to be exercised. It was proposed merely to designate the fund, and . . . as the proceeds of it came in, to invest them."[37] He offered as an alternative to federal construction of internal improvements, that the government could subscribe to the capital stock of incorporated companies and thus avoid interference with state jurisdiction. Citing the apparent unwillingness of the states to cooperate with one another in certain improvements, he suggested that projects "stamped with a national character" like the canal around the Ohio River rapids, the canals from the Hudson to the Great Lakes and the great turnpike road from Maine to Louisiana were best accomplished by the national government if they were to be accomplished at all.[38] By March 1, 1817 the Bonus Bill had passed both houses.[39]

Two days later President James Madison, confessing that he was "not unaware of the great importance of roads and canals and the improved navigation of water courses, and that a power in the National Legislature to provide for them might be exercised with signal advantage to the general prosperity," nonetheless vetoed the bill.[40] Madison found no such power expressly granted in the Constitution and could not deduce one without "an inadmissable latitude of construction and a reliance on insufficient precedents."[41]

Madison's constitutional scruples decided the issue. The controversy over potential invasion of state sovereignty by federal construction of internal improvements remained for the moment in the political domain. Until two-thirds of both houses favored federal action, Congress had to accept the president's definition of constitutional activity. National policy was settled by the departmental theory, that political disputes were to be resolved between the political branches of government.[42] Only when Congress had the ability to pass bills over the veto could the question of federal authority be reviewed by the judiciary. A sustained veto meant no federal action and no way to get to court.

At this point the composition of Congress began to shift with the admission of five new states between 1816 and 1821.[43] United with the older western states by similar interests, and separated from the eastern states by the Appalachian Mountains, the western states increased rapidly in population. By 1823 their full complement in Congress

accounted for thirty-seven percent of the Senate and twenty-two percent of the House.[44]

Western voters sent their members of Congress to demand an effective transportation system. Both the voters, who with rare exceptions were immigrants, and the congressmen, who made the yearly trek between their home states and Washington, were aware of the inadequacies of transport in the West. Unlike the smaller eastern states, the larger states of the Mississippi Valley had few roads or improved waterways and these were inadequate to span western distances. Western state governments had much narrower tax bases due to scattered, initially subsistence settlement and large untaxable federal land holdings. Further, in the new region scarce credit limited the possibility of privately financed improvements.[45]

But the apex of congressional support for a national system had been reached over the Bonus Bill in 1817 when the West, voting as a bloc, had allied with some eastern congressmen, including large portions of the New York and Pennsylvania delegations.[46] Madison's veto and Congress' inability to overcome it forced supporters of improvements to resort again to their state legislatures. New York embarked on a massive canal building program financed by the state.[47] Maryland continued to rely on county and privately financed projects to which the legislature occasionally voted stock subscriptions.[48] Virginia initiated in 1816 its "mixed enterprise" of subscribing to a fixed percentage of

the stock of companies meeting criteria established by the state Board of Public Works.[49] By the mid-1820s when New York's Erie Canal surpassed all expectations in terms of profit, other states, for example Pennsylvania, began their own improvement systems.[50] Delegates from states having invested substantially in their own programs forebore to vote federal funds to support competing projects.[51]

In 1822 "An Act for the Preservation and Repair of the Cumberland Road" raised the issue again and President Monroe immediately vetoed it.[52] In his veto message Monroe stated that if "Congress do not possess this power [jurisdiction over the road]; that the States can not grant it . . . ."[53] He also discussed the relation of the states to the national government and denied federal jurisdiction in areas where the state was sovereign. On the other hand, he acknowledged that Congress had the power to raise funds restricted only by their duty to appropriate them "to purposes of common defense and of general, not local, national, not state, benefit."[54] Neither house could override the veto.[55] By denying federal jurisdiction within individual states for the purpose of constructing a general scheme of improvements, Monroe limited congressional action to justifications based on specific enumerated powers or the compact theory.[56]

Monroe's veto established the practicable limit of Congressional action in internal improvements in the period before the Civil War.[57] Madison had vetoed the Bonus Bill

on the grounds that Congress could neither appropriate for nor construct a general system of internal improvements.[58] Monroe loosened this interpretation to allow for appropriations for internal improvements of general, national benefit, but he could not find justification for federal construction of internal improvements. Advocates of a national system had to accept these limitations.

The wide acceptance of the departmental theory settled the direction of national policy. With the exception of the promotional role assumed by presidents Zachary Taylor and Millard Fillmore, Congress over the entire antebellum period actively extended federal support of internal improvement projects and presidents reacted by limiting that support. Unable to override any of the presidential vetoes of internal improvement legislation, Congress was forced to accept the executive department's definition of constitutional activity. Once a veto had been invoked, Congress either resorted to subsidizing new modes of internal improvement not touched by the veto message, or to new forms of federal subsidy. Settlement of constitutional controversy by the political branches of the government effectively precluded judicial review of federal assistance programs. While presidential intransigence over the ability to determine constitutional action set the outside limits on federal support up to the Civil War, Congress' incremental assertion of new programs and projects eventually devastated the presidential rationale.

Monroe himself suggested two methods of federal assistance in his annual message of 1823.[59] The President requested that Congress consider aiding the Chesapeake and Ohio Canal Company by means of direct financial subsidy and provision of engineering services. Direct support in the form of subscription to stock in companies chartered at the state level implied state approval and control of the project.[60] Monroe's second suggestion, the provision of engineering services, attempted to formalize an existing executive policy.[61]

The administration recognized that engineering skills were a scare commodity in the Republic and that engineers were essential to internal improvement projects. Engineer officers had been loaned under the guise of technical assistance to projects with military justification when the War of 1812 revealed the inadequacy of intercoastal communication and long-line connections between ports and the interior. By 1824 demand for services had increased faster than the rate of trained officers, and the administration proposed the General Survey Act to supply engineering skills by creating a national planning system for internal improvements.[62]

Another way to facilitate the construction of internal improvements with federal funds involved redefining the improvements. Until 1824 "internal improvements" referred almost exclusively to roads and canals. Gallatin limited his Report to them, the House and Senate had Roads and

Canals Committees, and the General Survey Act empowered the President to direct surveys of roads and canals of national importance. Only Calhoun in his Report had seen fit to extend the definition of nationally important projects to include improvement of watercourses. Even into the 1820s river and harbor improvements were commonly seen as state and local responsibilities. With the exception of improvements necessary for coastal fortifications built by the Corps of Engineers, only the Treasury Department provided federal funds for river and harbor work, and these activities were limited to coastal surveys, charts, piers and beacons for the protection of foreign trade.

In order to circumvent potential presidential vetoes, however, watercourses had to be defined as beyond state sovereignty. As had been the case with the Cumberland Road, promoters resorted to extraconstitutional arguments. The Northwest Ordinance was again invoked to show that the Mississippi and St. Lawrence River systems had been declared common highways, and the Louisiana Purchase treaty endorsed this point of view.

Both shippers and boat owners demanded river and harbor improvement to reduce dangers and obstructions to navigation. Removal of snags and bars and deepening of harbors were urged to ensure safety and to reduce insurance rates. The upsurge of river traffic brought on by the success of the steamboat increased the demands for improvements.[63]

In 1824, responding to these demands, Congress passed "An Act to Improve Navigation on the Ohio and Mississippi Rivers."[64] Unlike the General Survey Act, river and harbor acts provided for specific projects itemized by Congress. Congressional designation of projects to be funded precluded the development of a national system (which the contemporary General Survey Act had attempted to create) and raised the problem of logrolling. Local pressure, commercial rivalries and vote-trading tended to increase the number of small projects of local character; increasing criticism of political jobbery and the depletion of the federal surplus after 1837 made congressional funding less likely.[65]

The 1830s and 1840s were a transitional period in the constitutional status of internal improvements. Changes in attitude toward federal support of improvements shifted as the significance of roads and canals receded in light of public eagerness for the new technologies of steamboats and railroads. Early enthusiasm for steamboats helped to end engineering studies of road and canal proposals under the General Survey Act. By comparison with improvement of navigable rivers, surveys in support of private road and canal companies appeared to subsidize unnecessarily activities which could be borne by state and local governments and the companies themselves. The General Survey Act declined in importance in the 1830s and was repealed in 1838.[66]

Another sign of the failing interest in road projects was Congress' acquiescence in President Andrew Jackson's veto of the Maysville Road Bill. The President vetoed the bill on the grounds that the road would be entirely in the state of Kentucky, was not national in character, and therefore did not qualify for a federal subsidy.[67] Projects meeting Jackson's criteria became increasingly harder to identify as viable "national" projects were already underway or completed, and intractable ones had been abandoned.

Yet Jackson was not altogether opposed to federal subsidy of internal improvements. Within days of the Maysville Road veto he signed a bill extending the National Road. More importantly, in his first annual message to Congress he recommended apportioning the federal surplus among the states, and in June 1836 Congress passed a bill providing for the quarterly distribution to the states of any Treasury surplus in excess of $5 million.[68] For its brief life the Surplus Revenue Act extended the principle of federal subscription to the stock of state-chartered internal improvement companies. Instead of designating specific enterprises, however, the surplus funds were "loaned" to the states for use at their discretion. The Panic of 1837 ended the program after only three disbursements.

While federal support of road and canal projects waned in the 1830s, by the 1840s an uncertain constitutional and financial climate buffetted river and harbor improvements.

Jackson had vetoed river and harbor bills in the first years of his administration on the grounds that many of the proposals were local in character. Yet in 1836 he had signed the largest appropriation to that date for such improvements, and his successor added to the bounty by approving large river and harbor programs in 1837 and 1838.[69] But the 1838 legislation was the last major funding for fourteen years.[70]

President John Tyler accepted only half of the 1844 improvements, and two years later President James K. Polk restricted the scope of river and harbor work by returning to Madison's test of constitutionality--whether the power was enumerated in the Constitution, or whether it was necessary and proper to an enumerated power.[71] Using Madison's standard, Polk declared that what purported to be "harbor" improvements were merely local projects which could not be justified using the commerce or general defense clauses.[72] Shippers and boatowners disagreed with the President. At the Northwestern River and Harbor Convention held the following year, they reiterated their demands for clearing obstructions to navigable waterways and cited the great loss of life and property as adequate reasons for expending federal funds.[73]

When a new administration took office in 1849 the roles of the executive and legislative branches reversed. Presidents Taylor and Fillmore recommended slates of new river and harbor improvements, but Congress chose only to

continue funding earlier projects. Finally in 1852 Congress appropriated $2 million for over 100 river and harbor improvements, creating the largest program in fourteen years.[74] But attitudes toward federal support were shifting as the potential of the railroads captured popular and congressional imaginations.

Failing interest in federally funded road and canal projects in the 1830s and waterway improvements in the 1840s balanced increased enthusiasm for public support of railroads. As early as the 1820s railroads had profitted from the General Survey Act when John Quincy Adams' administration accepted railroads as falling within the term "roads." Prior to the repeal of the act in 1838, the Corps of Engineers and the Topographical Engineers surveyed a number of railroad lines.[75] Early federal support also included the land grant. Between the late 1820s and 1850 Congress granted both rights-of-way and large adjacent tracts to canals chartered in states containing public lands. In several cases, when it became apparent that the canals would fail, Congress permitted the lands to be transferred to succeeding railroad companies.[76]

During the late 1840s railroad interests began to actively lobby Congress for grants of land. Modelling their proposals on the earlier grants to canals, railroad companies requested 100- to 200-foot rights-of-way and alternate sections extending six miles on either side of the line of the road. In exchange the companies promised to

complete their lines within a given number of years, to carry at no charge government troops, equipment and supplies, and to carry the mails for a negotiated fee. Congress granted the land to the appropriate state which held it in trust for the railroad which could borrow against the land or sell off those areas where the line was completed.[77]

Reaction in Congress was mixed. As early as 1844 bills had been introduced requesting at a minimum a right-of-way through public lands.[78] Discussion had centered on whether the ability to dispose of public lands could include giving them away.[79] After much debate in several sessions, the first successful railroad land grant bill passed Congress and was signed by the president in 1850. The railroad, to connect LaSalle, Illinois with Mobile, Alabama, amalgamated several proposed lines to provide a "national character" to the various enterprises and to secure sectional votes. This Illinois Central grant served as the model for others which quickly followed in 1852, 1853, 1856 and 1857. By 1857 it appeared that any proposed railroad that crossed federal land was entitled to a generous gift in aid of its construction.[80]

Despite all the activity at the national level, state and local governments provided the preponderant form of aid throughout the antebellum period. Direct federal participation was limited to about $20 million with technical assistance, mail contracts and rebates on duty

paid for imported railroad iron constituting several million more. Even if railroads and canals exercised all federal land grants, the total federal contribution to internal improvements before the Civil War amounted to less than $100 million. State aid to internal improvements during the same period has been estimated at $300 million and local government aid at $125 million.[81] Only in the matter of improvement of the Ohio-Mississippi River system had the argument advanced for national aid (that as common highways established by the compact theory their national character demanded federal aid) ended other forms of support.

Significantly, with funding provided by all levels of government and by private companies, there was little conflict. Of course rivalries existed and local jealousies certainly produced unnecessary and uneconomical improvements. With the parameters of federal support defined by the departmental theory, courts in the United States only settled disputes regarding the nature of state and local participation in internal improvements. About 1850 the courts' roles began to change as increasing steamboat tonnage on the rivers made consistency of laws regarding navigation more important and as the steamboat and railroad began to physically conflict where the latter crossed navigable streams.

Notes

1. When the route traversed a state, federal support was limited to technical assistance or subsidy of a state-chartered improvement. When the national government owned the land over which a route passed, the improvement was built at federal expense. When a project affected property held in common for all of the states, the compact theory was used to justify federal support.

2. Act 50 of the General Assembly of the Session beginning September 4, 1632.

3. Act 9 "Concerning Surveyors of High Waies" of the General Assembly Session beginning March 13, 1657-58. Hening 1:436.

4. Quoted in Joseph Austin Durrenberger, Turnpikes: A Study of the Toll Road Movement in the Middle Atlantic States and Maryland. (Valdosta, GA: the author, 1931), 19.

5. Quoted in Durrenberger, 19.

6. Raymond C. Baily, Popular Influence upon Public Policy: Petitioning in Eighteenth Century Virginia (Westport, CT: Greenwood Press, 1979), 114-116.

7. Freeman H. Hart, The Valley of Virginia in the American Revolution, 1763-1789 (Chapel Hill, NC: University of North Carolina Press, 1942), 3-8, 20.

8. Baily, 115.

9. Baily, 116. Other petitions to improve communication proposed clearance of river obstructions. in 1764 citizens of Buckingham County, Virginia asked that the James River falls be improved; a similar proposal for clearing the Potomac passed in 1772. See Baily, 116.

10. An excellent study of the development of a powerful federal union based on common interest in the western lands is Peter S. Onuf, The Origins of the Federal Republic: Jurisdictional Controversies in the United States, 1775-1787 (Philadelphia: University of

Pennsylvania Press, 1983).

11. Article IV, Northwest Ordinance.

12. The British refused to evacuate forts in the Northwest until Americans honored their debts contracted before the war. The Spanish refused to recognize American claims south of the Ohio River and in 1784 closed the Mississippi to American passage.

    Subsequent negotiations with the Spanish minister elicited Spanish recognition of American territorial rights north of what had been British West Florida and trading privileges in Spain, but were unsuccessful in reopening the Mississippi River. The willingness of the northern states to accept the proposed terms alienated western settlers dependent on the Mississippi for trade and southern states which anticipated great profits using the river. Disaffection with the administration of the western lands provoked serious attempts to ally with the Spanish. See Thomas Perkins Abernethy, Western Lands and the American Revolution, 2nd ed. (New York: Russell and Russell, 1959), 274-361.

13. George Washington to Governor Benjamin Harrison, October 10, 1784, The Writings of George Washington, ed. John C. Fitzpatrick, 39 vols. (Washington, D.C.: GPO, 1931-1944), 27: 471-480.

14. Max Farrand, ed., The Records of the Federal Convention of 1787, rev. ed. (New Haven, CT: Yale University Press, 1937), 2: 615.

15. Ibid.

16. Ibid. 2:615-616.

17. Examples of petitions to state legislatures are found in Hart, 154; Durrenberger, 13, 31, and 37. See also George Rogers Taylor. The Transporttion Revolution, 1815-1860, vol. 4 of Economic History of the United States (New York: Holt, Rinehart, Winston, 1951), 11-31 and Stuart Bruchey, The Growth of the Modern American Economy (New York: Dodd, Mead, 1975), 1-38.

18. Taylor, 11-31; Durrenberger, 76-83; James Willard Hurst, Law and the Conditions of Freedom in the Nineteenth-Century United States (Madison, WI: University of Wisconsin Press, 1956), 27-28, 54; Oscar Handlin and Mary Flug Handlin, Commonwealth: A Study of the Role of Government in the American Economy, Massachusetts, 1774-1861 (Cambridge, MA: Harvard University Press, 1947), 110-113.

19. The Report was issued December 5, 1791. The Papers of Alexander Hamilton, ed. Harold C. Syrett, 25 vols. (New York: Columbia University Press, 1961-), 10:13, 310.

20. Ibid., 310.

21. Ibid.

22. Carter Goodrich, Government Promotion of American Canals and Railroads, 1800-1890 (New York: Columbia University Press, 1960), 19.

23. Albert Gallatin, Report on the Subject of Public Roads and Canals (Washington, DC: Weightman by order of the U.S. Senate, 1808; New York: Augustus M. Kelley, 1968).

24. The Papers of John C. Calhoun, ed. W. Edwin Hemphill, 17 vols. (Columbia, SC: University of South Carolina Press for the South Caroliniana Society, 1959-1986), 3:461-462.

25. Ibid. 3:461-472.

26. Ibid. 3:462.

27. Ibid.

28. Ibid. 3:467.

29. Malcolm J. Rohrbough, The Trans-Appalachian Frontier: People, Societies and Institutions, 1775-1850 (New York: Oxford University Press, 1978), 91, 99-101, 128, 136-7. The major western products were wheat, flour, butter, pork, tobacco, hemp and lead.

30. The best description of New Orleans trade is John G. Clark, New Orleans, 1718-1812: An Economic History (Baton Rouge, LA: Louisiana State University Press, 1970), 21-216. See also Durrenberger, 47.

31. One instance of a more expansive approach to federal activity was the act which authorized Zane's Trace. In exchange for opening a road through the Northwest Territory from Wheeling, Virginia to Limestone, Kentucky, and for providing ferries at river crossings, the petititoner, Ebenezer Zane, received three tracts of public land. The Senate committee reporting the bill favored its passage on the grounds "that the proposed road will be of general utility." Annals of Congress, 4th Cong., 2nd sess., 2904-2905; "An act to authorize Ebenezer Zane to locate certain lands in the territory of the United States northwest of the Ohio River," Annals of Congress, 4th Cong., 2nd sess., 66.

32. See the discussion in Curtis Nettels, "The Mississippi Valley and the Constitution, 1815-1829," Mississippi Valley Historical Review 11 (1924-1925), 334-345.

33. James Monroe, "View of the President of the United States on the Subject of Internal Improvements," May 4, 1822 recapitulates previously enacted improvements. See James D. Richardson, comp., Messages and Papers of the Presidents 1789-1897, 10 vols. (Washington, D.C.: Bureau of National Literature and Art, 1907) 2:169.

34. While the Northwest Ordinance had prohibited territorial legislatures from interfering with the disposal of public lands, statehood carried no such burden: the new state government could impose property taxes on land sold by the federal government but only partially paid for. If the owner did not pay these taxes, the state could then sell the lands for nonpayment and the federal government would lose not only its public land revenue, but also control of the land itself. Secretary of the Treasury Gallatin tried to effect a compromise which would accommodate the administration's concern about state tax foreclosure and Ohio's concern about the loss of potential tax revenue. To Gallatin it was unlikely that "the new State legislature should assent to any alterations in their system of taxation . . . unless an equivalent is offered." Gallatin foresaw construction of a road at federal expense "instead of diminishing, would greatly increase the value of the lands" and therefore future federal revenues from their sale. See Annals of Congress, 7th Cong., 1st sess., 1097-1126; Annals of Congress, 8th Cong., 1st sess., 631-637; and Jeremiah Simeon Young, A Political and Constitutional History of the Cumberland Road (Chicago: University of Chicago Press, 1902), 15.

35. Language of the bill quoted in James Madison, "Veto Message," March 3, 1817, in Richardson 1:584.

36. Annals of Congress, 14th Cong., 2nd sess., 852.

37. Ibid., 866.

38. Ibid., 867.

39. Ibid., 109-112, 185-192, 934, 1051-1052.

40. James Madison, "Veto Message," March 3, 1817, in Richardson, 1:585. The day after Madison's veto his successor James Monroe, in his First Inaugural Address agreed that "the improvement of our country by roads and canals, proceeding always with a constitutional

sanction, holds a distinguished place [among interests which claim public attention]." But the new president concluded by warning Congress that he supported Madison's veto. James Monroe, "First Inaugural Address," March 4, 1817, in Richardson, 2:8.

41. James Madison, "Veto Message," March 3, 1817, in Richardson, 1:585.

42. See the discussion of the departmental theory in Kermit L. Hall, The Supreme Court and Judicial Review in American History (Washington, D.C.: American Historical Association, 1985), 4.

43. The new states were Indiana, Mississippi, Illinois, Alabama and Missouri.

44. Nettels, 323.

45. Ibid. 333.

46. Taylor, 21.

47. See Nathan Miller, The Enterprise of a Free People: Aspects of Economic Development in New York State during the Canal Period, 1792-1838 (Ithaca, NY: Cornell University Press, 1962).

48. The best known Maryland projects were the Chesapeake and Ohio Canal and the Baltimore and Ohio Railroad.

49. See Carter Goodrich, "The Virginia System of Mixed Enterprise: A Study of State Planning of Internal Improvements," Political Science Quarterly 64 (1949): 355-387.

50. See Louis Hartz Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948).

51. Miller, 3; Hartz, 140-144.

52. Annals of Congress, 17th Cong., 1st sess., 444, 1734.

53. James Monroe, "Veto Message," May 4, 1822, in Richardson, 2:143.

54. James Monroe, "Views of the President . . . on the subject of interal improvements," May 4, 1822, in Richardson, 2:173.

55. Young, 55-77, provides an extended discussion of "The Cumberland Road Gate Bill of 1822."

56. Monroe vetoed the 1822 act to repair the Cumberland Road because the act created a system of toll gates and penalties for damaging the road in the states of Maryland, Pennsylvania and Virginia. Monroe objected to the assumption of federal sovereignty in pre-existing states. He did not find the extension of the road where territories applying for statehood had compacted for its construction an unconstitutional imposition of federal authority.

57. Both Madison and Monroe had suggested constitutional amendments and later Jackson supported the idea, but no attempt was made to begin the amending process.

58. Madison's restriction with regard to "constructing" appears to be inconsistent with his position in the discussion of Franklin's proposal on canals and Madison's own amendment of that proposal at the Consitutional Convention in 1787.

59. James Monroe, "Annual Message," December 2, 1823, in Richardson, 2:216.

60. The four companies which received federal aid (all during the administrations of Monroe and John Quincy Adams) had been identified as projects of national character in both Gallatin' and Calhoun's reports. Their appropriations were:

Chesapeake & Delaware Canal Co.	$ 300,000	(3/03/1824)
	150,000	(3/02/1829)
Louisville & Portland Canal Co.	100,000	(5/13/1826)
	135,000	(3/02/1829)
Dismal Swamp Canal Co.	150,000	(5/18/1826)
	50,000	(3/02/1829)
Chesapeake & Ohio Canal Co.	1,000,000	(5/24/1828)

Goodrich, Government Promotion, 41.

61. Forest G. Hill, Roads, Rails and Waterways: The Army Engineers and Early Transportation (Norman, OK: University of Oklahoma Press, 1957), 24-31.

62. West Point was the only institution offering engineering training of more than one year until Rensselear Politechnic Institute expanded its program in 1850. See also Nettels, 350-351 and Hill, 77, 78, 60 and 208.

63. Isaac Lippincott, "A History of River Improvement," Journal of Political Economy 22 (1914): 631.

64. 4 U.S. Stat. 33.

65. War Department officials complained that the engineers who prepared surveys, plans and estimates and also supervised construction were overworked. Late appropriations forced projects to be carried over year by year with predictable loss of cost efficiency. Over the most active years of the "program" (1824-1838) $9 million in federal funds had been expended. Over the next twenty-two years an additional $5.7 million were spent by means of special acts and riders. See Hill, 178; Lippincott, 649.

66. 5 U.S. Stat. 260.

67. Andrew Jackson, "Veto Message," May 27, 1830, in Richardson, 2:483-493.

68. Andrew Jackson, "First Annual Message," December 8, 1829, in Richardson, 2:451-452; and Correspondence of Andrew Jackson, ed. John S. Bassett, 7 vols. (Washington, D.C.: Carnegie Institution, 1926-1935), 4:10-13. See also Douglas E. Clanin, "Internal Improvements in National Politics, 1816-1830," in Transportation and the Early Nation (Indianapolis: Indiana Historical Society, 1982), 46; and Daniel J. Elazar, The American Partnership: Intergovernmental Co-operation in the Nineteenth-Century Unites States (Chicago: University of Chicago Press, 1962), 203-204.

69. Hill, 170-173.

70. Ibid., 176, 180.

71. Tyler's veto message of 1844 condemned all projects in "An Act making appropriations for the improvement of certain harbors and rivers" as being of local character and not sanctioned by the Constitution. At the same time Tyler approved a bill of the same title which itemized projects on the Mississippi River, its major tributaries and the Great Lakes. Enumerating his grounds for accepting the latter bill, Tyler asserted that the Mississippi River "occupies a footing altogether different" from other rivers as the common property of all states. He justified approval of the Great Lakes projects on the principle of providing protection in case of storm to naval vessels and merchant ships. John Tyler, "Veto Message," June 11, 1844, in Richardson 4:332.

72. James K. Polk, "Veto Message," August 3, 1846, in Richardson, 4:462, 463. According to Polk "many of the ports of entry and delivery, now authorized by law, so far as foreign commerce is concerned, exist only in the statute books. No entry of foreign goods is ever made

and no duties are ever collected at them." They were in fact "paper ports". Nor could they be justified as places of refuge, since they were simply "the mouth of a creek or a shallow inlet on the coast".

73. U.S. Congress, Senate, Memorial of the Chicago Convention, 30th Cong., 1st sess., 1848, S. Mis. Doc. 146.

74. Hill, 186.

75. Ibid., 96-132.

76. Elazar, 137.

77. Elazar, 137-140; Goodrich, Government Promotion, 170-173.

78. John Bell Sanborn, Congressional Grants of Land in Aid of Railways, Bulletin of the University of Wisconsin, vol. 30 (Madison, WI: University of Wisconsin Press, 1899), 25.

79. Proponents of the bills held that by giving away some lands and requiring that lands adjacent to improvements be sold for at least double the minimum price, the net proceeds to the federal government would be the same or greater, and in addition the states would be able to tax property released from federal control. Opponents of the bills stated that to give land to one party and charge double to actual settlers was discriminatroy use of public lands; further, they argued that such federal grants of land for internal improvements were no different from direct federal construction which previous presidents had vetoed as unconstitutional. Congressional Globe 31st Cong., 1st sess., 536, 845, 848-851, 869, 903, 1437; and Ibid. 30th Cong., App. 534-537.

80. Sanborn, 54-56.

81. Goodrich, Government Promotion, 268.

CHAPTER III
THE ROLE OF PARTIES IN TRANSPORTATION DEVELOPMENT

In the first Wheeling Bridge case counsel for the opposing parties presented state statutes and programs supporting their clients' positions. The State of Pennsylvania, as plaintiff, claimed that the Wheeling bridge obstructed Ohio River steamboat traffic which carried freight to and from the Pittsburgh terminus of the state's Main Line canal and portage railroad system. Obstruction of steamboats by the bridge, Pennsylvania contended, reduced the state's toll revenues from the Main Line which had been constructed at public expense. Defense attorneys countered this allegation by presenting the bridge company's charter from the Virginia General Assembly and asserting that the bridge as built met the terms of the charter and was therefore legal. The Supreme Court considered the Wheeling Bridge case both in the framework of the Constitution and within the context of transportation systems developed by state legislatures responding to public needs on the one hand and complementing federal internal improvement provisions on the other.

State efforts at funding and constructing improvements during the late eighteenth and early nineteenth centuries may be divided into three major periods based on the

changing nature of federal internal improvment programs. During the first period, from the Revolution to the late 1810s, the federal government built only one major internal improvement and assumed responsibility for other minor improvements specifically sanctioned by the Constitution. At the same time the states attempted to create their own transportation systems. For example, between the Revolution and 1800 Maryland, Pennsylvania and Virginia chartered eleven turnpike corporations, nine toll bridges and twenty-five inland navigation corporations, the most important of which were the Potomac Company and the James River Company.[1]

The charters for these corporations shared many common features, including appointment of commissioners to lay out routes, condemnation procedures for land taken by projects and capitalization requirements. Most of the turnpikes and canals of the eighteenth century were relatively small affairs (shorter than 40 miles), capitalized at less than $100,000. To insure investors a favorable rate of return and the public a reasonable charge for use of the improved route, legislatures provided rates of toll.[2]

Several important characteristics of state participation distinguished these early improvement corporations. First, promoters of roads, bridges and canals presented their proposals for improvement corporations at the state level, although deliberations at the Constitutional Convention and Hamilton's Report on manufactures had contemplated federal internal improvement

development. Second, legislators did not question whether state assemblies could authorize such proposals. If there was discussion, it centered on expediency, not constitutionality, and even expediency was rarely argued, since the obligations were usually incurred by the new organizations. Third, promoters of individual enterprises requested special charters, not authorization for "free" internal improvement laws; and discussions centered on particular enterprises, not the broad principles of state sponsorship.[3] Finally, promoters claimed that granting their charters fulfilled the legislators' patriotic duty to supply the community's need for better transportation. In the early national period the "improving spirit" was largely bi-partisan.[4]

Investors have been identified as Federalist planters, merchants and professional men.[5] Given the high cost of investment in the early turnpike and river improvement companies ($200 and up per share), it is not surprising that men of substance bought stock.[6] Nor is their political affiliation surprising. In the Pennsylvania, Maryland and Virginia Piedmont and Valley areas to be served by the improvements, and in the seaport termini, voting returns favored ratification of the Constitution. Regional self-interest, the desire for strong government and the availability of speculative capital coalesced in votes for internal improvement charters and subscriptions to the companies so formed.

Within ten years the James River and Potomac Companies had cleared obstacles, built canals around rapids, and cut in half the costs of shipping back-country products.[7] The Potomac Company was more successful in providing service to farmers than in providing returns on investment for its subscribers.[8] But it, along with the more profitable James River Company and successful turnpikes, proved that publicly sponsored improvements benefitted both the farmers of the back-country and commercial interests in towns. By about 1800 those voters who recalled Hamilton's Report, and those voters concerned with better communication and trade with settlements in the Northwest Territory considered federally-sponsored long lines to the West as the next avenue for internal improvement development.

In 1800 nearly one million settlers lived in the area between the Alleghany Mountains and the Mississippi River, Kentucky and Tennessee had already been admitted to the Union, and six more new states would be admitted in the next two decades. Two years later the debates on the bill establishing the terms for Ohio statehood concerned primarily the ability of Congress to prescribe conditions of constitutional government for the proposed state.[9] But secondary arguments centered on whether public land revenue could be expended on roads from the East to the Ohio capital.

An important aspect of this political discussion related to parity in the use of federal funds. Roger

Griswold, a Connecticut Federalist, claimed that the use of public land revenues earmarked for payment of the national debt to build roads in Virginia and Pennsylvania was unfair to other states. Representatives William Branch Giles, a Virginia Democratic-Republican and John Smilie, a Pennsylvania Democratic-Republican denied any particular advantage to their states and argued that federal construction of lighthouses on the Connecticut shore had given similar local advantage. Debate ended with the understanding that the proposed road funds would compensate Ohio for lost tax revenues, and that the roads themselves would enhance the value of the public lands and benefit all.[10]

The compact proposal sent to Ohio contained the provision that two percent of the net proceeds of federal land sales in the state would be applied to building roads from the navigable rivers emptying into the Atlantic Ocean "to . . . and through" the new state.[11] The Senate committee formed to consider routes concluded that the most appropriate use of the funds would be to lay out a road from Cumberland, Maryland "to the river Ohio [between the points], opposite to Steubenville, and the mouth of Grave creek which empties into said river Ohio a little below Wheeling, in Virginia."[12]

But the "cement of union," as the committee called what was to become the National Road, still had a number of obstacles to overcome, as much political and economic as

geographical.[13] Localism, for example, appeared almost immediately. The commissioners appointed to locate the road complained that in addition to examining the entire designated area between Cumberland, Steubenville and Wheeling, their task was rendered more difficult "by the solicitude and importunities of the inhabitants . . . who severally conceived their grounds entitled to a preference."[14]

Economic problems also slowed construction. British blockade of the Atlantic coast in the War of 1812 halted the sale of agricultural products abroad, and Indian unrest abetted by the British discouraged migration and farm development in the West. Fewer new settlers and decreased land sales prevented the growth of the two-percent fund. The blockade also compelled Americans to trade with one another across the mountains by means of tortuous routes, which forced both easterners and westerners to realize the difficulty and expense of overland trade.

In the immediate post-war period the continuation of the Cumberland Road constituted the major federal effort at internal improvement.[15] At the same time the states continued their own projects, and by early 1816 several roads connecting eastern markets with the New West were underway. Pennsylvania began construction on turnpikes from Philadelphia to Pittsburgh on the Ohio River.[16] Both Maryland and Virginia built turnpikes to connect to the Cumberland Road.[17]

John C. Calhoun's introduction of the Bonus Bill in late 1816 marks the beginning of the second period of internal improvement development. Between 1816 and 1825 Congress attempted to expand the role of the federal government in transportation while presidents James Madison and James Monroe vetoed general improvement programs. Supporters of the Bonus Bill intended to earmark the anticipated Bank of the United States bonus and dividends for a federal program of internal improvements. Debates on the bill in early 1817 centered on use of the windfall from the bank for such a program. Congressmen considered whether they had the constitutional authority to build a system of roads and canals and whether it was politically expedient to do so.[18]

Proponents of the bill presented constitutional arguments which ranged from the unequivocal assertion "if we have the power [to fund improvements] at all, it is the supreme power . . . " to defensive countermeasures.[19] For example, Representative Daniel Sheffey, a Virginia Federalist, argued that since Congress had erected lighthouses, piers and beacons in aid of commerce it could also build roads and canals.[20]

Calhoun's and Henry Clay's constitutional arguments rebutted the bill's opponents. Clay defended the constitutionality of the bill because it merely designated a fund for improvements; it did not actually provide a mechanism for spending money. He suggested that as an

alternative to federal construction of internal improvements the government could subscribe to the capital stock of incorporated companies and thus avoid interference with state sovereignty.[21]

Calhoun's posture was even more defensive. He evaded his opponents' demands for justification based on the enumerated powers by citing examples of other appropriations which had been justified on general welfare grounds. In addition to the purchase of Louisiana, Calhoun asked his colleagues in the House "to look no further back, at the last session a considerable sum was granted to complete the Cumberland Road."[22]

Congressmen supporting the bill also advanced political arguments. Improved transportation would enable farmers and merchants to ship goods at lower costs and therefore increase their capacity to pay taxes. Construction of internal improvements would create new jobs, encourage private investment and provide not only a completed program of improvements but also safe investments for federal funds.

The bill's opponents presented two complementary arguments. In the first place Congress had no power to build roads and canals. At the time of adoption of the Constitution, the states controlled the building of roads and canals. Since that power had not been given to Congress, it still resided in the states. Senator David Daggett, the Connecticut Federalist who presented this

argument, also denied the applicability of the welfare, defense and commerce clauses. He then presented the second opposing argument: Congress lacked the ability to appropriate money for an object not within its scope of authority, even when the states assented to the proposition.[23]

Opponents of the bill also touched on political issues. They declared that the purpose of the bonus should be to pay off the national debt. They questioned whether it was "fair to tax the industrious and provident to make roads for the negligent," and preferred to see the bonus money spent on canals.[24] Other opponents criticized the mechanism of expenditure.

Contemporary comment found "rather a more Southern and Western ascension and a more Northern and Eastern declension."[25] Subsequent evaluation suggests an alliance of westerners with the New York and Pennsylvania delegations.[26] Opponents tended to be New England Federalists and Southern Democratic-Republicans, but political partisanship provided no clearcut indication of attitude to federally-sponsored internal improvements. In the debates expectation of federal funds motivated arguments. While Congressmen voted their consciences on the issue of constitutionality, clearly where constituents had little to gain from a federal program (for example in those states with no access to the West, or where a state road

program had already been developed), Congressmen voted against the Bonus Bill.

The constitutional issue continued to plague internal improvement questions. Congress proved unable to override Madison's veto of the Bonus Bill, yet Madison found himself signing bills for federal support of other internal improvements. Appropriations passed for surveying and building roads over Indian territory, roads through public lands and the Cumberland Road. With little political opposition advocates successfully argued for the bills by resorting to the special constitutional conditions regarding Indian affairs, the territories and even the compact theory.[27] Federal funds also built coastal lighthouses and roads to frontier forts. But in the first two decades of the nineteenth century only fourteen projects other than the Cumberland Road were constructed at federal expense.[28] Madison had vetoed the Bonus Bill on the principles of "an inadmissable latitude of construction" and "insufficient precedents".[29] Repeated passage of these special projects slowly eroded the latter ground.

In the early 1820s the number of federal internal improvement projects increased as a new administration suggested new mechanisms of federal support. Federal aid expanded to include stock subscriptions and technical assistance to internal improvement projects of "national object".[30] Congress subscribed to stock in canal companies, and provided engineering services to internal improvement

projects by means of the General Survey Act of 1824. In addition to establishing new mechanisms of aid, another political maneuver expanded the definition of "improvement" to include watercourses.[31] In 1824 Congress passed an act to improve navigation on the Ohio and Mississippi rivers, and followed it in 1826 with a combined river and harbor act itemizing twenty projects.[32]

During the remainder of the 1820s federal participation in internal improvement projects in the states continued, as did federal expenditures for river and harbor projects. But compared to what might have been, the federal contributions offered too little, and after 1825 and the opening of the Erie Canal, too late.

In 1817, impatient in the face of federal inaction, the New York legislature created a state system of improvements based on equitable financial terms: those regions benefitting the most would make the largest contributions to the Canal Fund.[33] Even with an equitable funding scheme and broad-based political support the New York canal commissioners faced daunting problems. In 1816 only 100 miles of canal had been built in the entire United States; only three canals were more than two miles long; and the longest of these extended only twenty-eight miles.[34] The commissioners anticipated that the Erie Canal would stretch 364 miles from Albany to Buffalo and would accomplish a vertical rise of 650 feet.[35] Within two years of the passage of the Canal Act technological and financial

problems had been overcome, and the first section of seventy-five miles opened. In 1825 the entire length of the Erie Canal opened, and tolls exceeded $500,000. By 1826 the commissioners worried about what to do with surplus funds.[36]

The success of "Clinton's Ditch" touched off a canal craze and marks the beginning of the third phase of internal improvement development. New York had proven that a state could surmount the Alleghany barrier. At the same time a general program of federally-funded improvements had been foreclosed; federal activity consisted of river and harbor improvements, technical assistance and roads for defense and the sale of public land. Comparison of the Bonus Bill and General Survey Act votes demonstrated decreasing congressional support for a federal system of internal improvements; between the two votes the New York delegation had shifted to the opposition. In order to secure majorities for their favorite projects, Congressmen wrote bills which itemized improvements. The resulting vote-trading and logrolling created alliances across party lines as often as within them since concrete local needs contravened abstract partisan attitudes.

Yet the national Democratic and Whig parties of the 1830s, 1840s and early 1850s continued to maintain distinct attitudes on the role of government in the economy.[37] The Whigs adopted Henry Clay's American System with its complementary features of prosperous and protected manufactures, stable currency, a national system of internal

improvements and the ready exchange of goods between all regions of the country. Whig politicians espoused internal improvements for their benefits to the community at large, not only in reducing transportation costs and expanding markets, but also for increasing capital and creating jobs.

The Democratic party also accepted a role for government in the economy, but a limited one. Democrats believed the government's role was to protect the competitive system and small units in the market place from monopoly and special privilege. Democratic politicians voted against national bank proposals, protective tariffs and increases in public debt. From 1840 on the Democratic platform denied constitutional authority "to commence and carry on a general system of internal improvements."[38]

While party ideology remained consistent on economic issues, congressional votes on internal improvements divided along nonpartisan lines. Democrats whose national financial attitudes opposed improvements, often voted for them when they benefitted local and regional interests. For the most part Whigs found constituent interests and national party financial attitude aligned, except when representing areas with few internal improvement possibilities. In the Twenty-Seventh through Thirty-Second Congresses internal improvement measures produced votes along lines of opportunism, not political ideology.[39] With such an unwieldy and unpredictable mechanism for securing what limited support existed at the federal level, promoters of

internal improvement projects converged on statehouses in search of government aid.

Legislators at Richmond proved sparing in their distribution of Virginia privileges, revenue and credit for transportation projects and failed to provide a completed route to the West in the pre-Civil War era. Virginia legislators concentrated their internal improvement efforts on the central areas of the state and rarely chartered or funded projects which would not be tributary to Virginia market towns and ports. As a result Wheeling, the second largest city in the state, suffered at the hands of the legislature because of its isolated position in the northwest corner. The General Assembly's charter for the Wheeling and Belmont Bridge Company offered no guarantee of support in the suit brought by Pennsylvania. While the bridge company hoped the legislature would defend the charter on the grounds of the state's sovereignty over matters within its territory, Virginia's internal improvement policy did not auger well for the bridge company.

In the early nineteenth century Virginia's political factions often bore a direct correlation to the physical regions of the state. Political attitudes on economic issues corresponded to the predominant use of the land and the economic fortunes of its products. Voters in areas endowed with natural transportation systems saw little reason to tax themselves to construct improvements for other

areas. How the four major regions of the state viewed their transportation needs, and the relative political strength of the regions determined Virginia's development of an internal improvement program.[40]

The oldest settled area, the Tidewater, encompassed the flat fertile land between the Chesapeake Bay and the fall line of the great rivers of the state. In the eighteenth century tobacco culture on the necks of land between the rivers furnished prosperous living conditions for plantation owners and merchants of the area's ports. Since the rivers and rolling roads provided adequate transportation for the movement of tobacco, Tidewater voters in the nineteenth century generally found transportation issues a matter of taxation with no local gain.[41]

Above the fall line the Piedmont was a rolling land of small grain farms and large speculative holdings. As the nineteenth century advanced and soil exhaustion forced Tidewater plantation owners to seek better lands, a number of tobacco plantations developed above the fall line. By the 1820s the local network of turnpikes provided adequate transportation facilities to move crops to fall line markets at Alexandria, Fredericksburg, and Richmond, but did not accommodate shipments from the West. Piedmont voters favored improvements of their own roads and rivers for their own purposes, but did not concern themselves with the desires of their western neighbors in the Valley of Virginia.

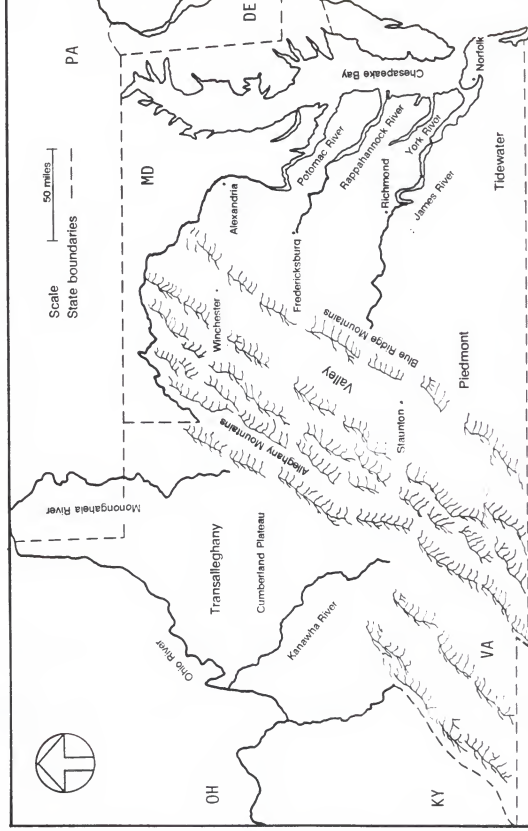


Figure 1. Virginia Geographical Regions

Movement of goods and people over the Blue Ridge Mountains to the Valley had been Virginia's major transportation problem since the eighteenth century. Initially settlement and trade flowed down and up the Valley from its northern mouth in Pennsylvania. This movement had determined not only who settled in the area, but also its agricultural pattern. Unlike the Tidewater and Piedmont, large prosperous grain and cattle farms and market towns filled the Valley. Voters there demanded better roads and waterways, not only for their own section, but also as eastern avenues over the Blue Ridge and through the Piedmont to eastern seaports.

West of the Valley stretched miles of Alleghany Mountain range, a formidable barrier to east-west movement. The Transalleghany area beyond consisted of the Cumberland Plateau and the Ohio River Valley. The former was sparsely settled until well into the nineteenth century; the latter, including the valleys of several tributary rivers, contained fertile bottom land and rich mineral resources. Tidewater families spread their plantation economy into the fertile valleys of the Transalleghany region; mining and sheep grazing developed in the rugged hill country. While many of the products of the western region could be sent downriver to New Orleans, in the early part of the nineteenth century most supplies for the area had to be brought across the mountains. In the Transalleghany region voters considered internal improvements critical to the development of the

section, but they acknowledged that chronic credit shortage and an inadequate tax base necessitated government aid.

In the late eighteenth century, at the request of petitions from the Piedmont and the Valley, the Virginia General Assembly authorized the first American turnpike, and chartered the James River and Potomac companies.[42] Other appeals from western settlers "the Prosperity of which [whom] depends most materially on the cheapness of carriage for their bulky Commodities to the trading towns on the navigable Waters of this State" received due consideration, and what accommodation was available from the state in the immediate post-revolutionary period.[43]

By the last decade of the eighteenth century the James River Company had cleared obstacles from over 200 miles of the waterway and built seven miles of canals around the rapids at Richmond.[44] Gallatin's Report of 1808 identified the James River improvement as one of the most successful in the country.[45] But from 1805, when controversy over charter requirements embroiled company directors in repeated disputes with the legislature, until after the Civil War, the vicissitudes of James River projects directly affected the attitudes of legislators to other projects in the state.

Even before Gallatin's Report had been issued, westerners protested the James River Company's nonperformance of charter duties, and legislative commissions investigated the company's works and considered other navigation improvements. Commissioners charged with

surveying the western rivers of the state recommended vast schemes of internal improvements, warned against "supineness" in the contest for western commerce, and suggested securing federal appropriations to aid in their execution.[46] By means of a united western vote, the Assembly assigned preparation of a bill for uniform state subscription to its Committee on Roads and Navigation. The committee's report served as the basis for the Act of February 5, 1816 creating the Fund for Internal Improvement and the Board of Public Works to manage the fund, examine proposed projects and recommend appropriate investments.[47] The act limited state contributions to forty percent of project cost.

During the next thirteen years chronic agricultural depression beset eastern Virginia.[48] Land values for the state as a whole declined from $206 million to $90 million, and exports decreased from $8.2 million to $3.3 million.[49] Soil depletion, low tobacco and grain prices and marketing problems brought about the consolidation of small holdings and the migration of small farmers and dissatisfied planters. The latter in turn threw worn out Tidewater and Piedmont lands on the market which further depressed the declining real estate market.[50] In the Valley diversified farming and superior husbandry protected arable land. In the Transalleghany grazing and domestic manufactures played larger roles in the economy than in the eastern parts of the state. Depression in the value of tillable lands was more

than compensated by the growing industries of salt-mining and iron-, glass- and pottery-making.[51]

Virginia politics during this period resolved into a one-party system. Republicans controlled both state and national elections; only differing attitudes on the role of the national government in areas of tariff, credit and internal improvements split Republicans into "Old" and "National" factions.[52] Western Virginians tended to support national government involvement as a reaction to the state's inactivity in internal improvements. Although the legislature had established the Board of Public Works and the Internal Improvement Fund, moneys in the fund had proven inadequate for the projects westerners needed.[53] By the 1820s western Republicans supported Henry Clay's American System, at least to the extent that the state government failed to address western needs.

Realizing that inactivity at the state level drove westerners to support National Republican programs, the Old Republicans attempted to retain Transalleghany support. In 1820 the state assumed the management and in 1828, the ownership of the James River Company.[54] In the early 1820s the Assembly accepted the reorganization of the Potomac Company as the Chesapeake and Ohio Canal Company, granted the company a charter, and appropriated funds for its support.[55]

In the period prior to 1830 Virginia political attitudes on economic issues of credit, tariff and internal

improvements divided into eastern and western factions.[56] The major exception to this division involved attitudes toward the Baltimore and Ohio Railroad. In 1826 the newly organized B. and O. requested permission from the General Assembly to construct a rail line along the Shenandoah and Kanawha valleys to the Ohio River. Residents of the Valley and the Kanawha section supported the proposal. But the Assembly proved unwilling to open the central part of the state to Baltimore commercial interests at the expense of Richmond merchants. Instead the B. and O. authorization specified a northern route and terminus.

Residents of the Kanawha Valley had had their expectations raised by two projects: the railroad and the state-owned James River improvement and its westward connections. But competing interests jeopardized these projects: further north along the Potomac and Monongahela valleys and in the northern panhandle other westerners anticipated the arrival of the Chesapeake and Ohio Canal and the Baltimore and Ohio Railroad along its legislatively mandated route. By 1830 the latent antagonisms over east-west connections led to not only the east-west political split visible in the 1810s and early 1820s, but also to a new north-south division along the major east-west routes.

Competing western Virginians also found little to cheer about in national Jacksonian politics. The House of Representatives tabled the Buffalo to New Orleans Road Bill, which had attracted the interest and support of the

Valley.[57] President Andrew Jackson's veto of the Maysville Road appropriation forced Transalleghanians to recognize that little aid for any project could be expected from the federal government. Opposition to Jackson's internal improvement policy, his removal of deposits from the Bank of the United States and the administration's tariff of 1828 led the extremes of the Virginia Republican party to unite. An eastern states-rights, anti-Van Buren wing; disillusioned western nationalists; and commercial interests in Richmond and Norfolk formed a tenuous coalition which won control of the legislature in 1834 and became the basis for the Virginia Whig party.[58]

In the meantime the absence of a federal internal improvement system led to renewed state activity. In 1831 the legislature chartered four new railroad companies and a number of turnpikes. During the early 1830s the rivalry between the Potomac-northwest avenue to the Ohio River and the James-Kanawha avenue eclipsed the former east-west political cleavage. On the northern edge of the state commercial interests at Alexandria and Georgetown united with agricultural interests along the Potomac and Monongahela valleys, market interests at Winchester and commercial interests in the northern panhandle. Intent on enhancing the value of their property and lowering the costs of shipment of their produce and supplies, they lobbied the General Assembly for appropriations for the Chesapeake and Ohio Canal and the Baltimore and Ohio Railroad, and decried

the expenses associated with the still uncompleted James River improvements. At the same time Richmond commercial interests, agricultural interests along the James and Kanawha valleys and market interests at Staunton lobbied for funds for the central route, and denounced the northern efforts as aiding the commerce of Baltimore to the detriment of Virginia's merchants.[59]

The state as owner of the James and Kanawha project proved no more successful than private enterprise in connecting the eastern and western watersheds.[60] Shippers used the completed James River portion of the route, but the uncompleted Kanawha section had languished and fallen into disrepair, and the waterway through the intervening mountains had only been surveyed. The public in areas to be served by the Baltimore and Ohio Railroad and the recently chartered Lynchburg and New River Railroad refused to vote funds for the competing state line.[61] As a result the 1832 General Assembly surrendered the state property to a new corporation authorized to complete the "central line."[62] As a compromise measure the state-chartered enterprise enabled construction to continue without state appropriations, but prosecution of the work was jeopardized almost immediately by the company's lack of capital. Two sessions later the predominantly Whig legislature raised the state subscription from $1 million in transferred property to $3 million, but reaction to the Whig subsidy brought about the return of a Democratic majority to the Assembly of 1835.[63] Party policy

and control of succeeding assemblies revolved around internal improvement issues in general and the James River and Kanawha Company in particular.

Between 1834 and 1848 neither party controlled the statehouse for more than three consecutive years. Whig majorities provided state support to the central line of improvements. Democratic majorities reversed Whig policy, the James River and Kanawha Company's fortunes declined, and projects in the Northwest and Southwest received state aid.[64] Alternating control of legislative sessions did not seriously deter internal improvement development. Both Whig and Democratic legislatures granted requests for charters and for state subscriptions. Projects authorized during Whig ascendency benefitted traditionally Whig sections of the state; during Democratic ascendency projects in Democratic strongholds received charters and funds. Even the Panic of 1837 did not significantly affect party policy: both Virginia parties merely resorted to temporary retrenchment.[65]

The expiration of the charters of the James River and Kanawha Company and the Baltimore and Ohio Railroad brought both ventures before the 1844-1845 General Assembly. Whig control of the House of Delegates helped the James-Kanawha enterprise secure liberal renewal terms, but Democratic control of the Senate blocked badly-needed funding.[66] The Baltimore and Ohio Railroad suffered an even worse fate. The legislature not only denied the company's petition for a

southerly route to Parkersburg, but also declared the state's $1 million subscription of 1838 void due to the railroad's failure to comply with legislative conditions.[67] Repeated Democratic victories at the polls up to the Civil War insured continued neglect of the James-Kanawha improvement, but by 1850-1851 where the state chose to contribute to an improvement, the subscription generally amounted to sixty percent.[68]

By the mid-nineteenth century Virginia's system of internal improvements consisted of approximately 100 projects receiving support from the Internal Improvement Fund as well as many more state-chartered enterprises constructed with private funds. Turnpikes ran from the Tidewater through the Piedmont and Valley and into the Transalleghany, and the state had tried to develop a long line to compete with the Erie Canal and the Pennsylvania State Works. In addition to the James River and Kanawha Company, the Virginia and Tennessee Railroad was designed to connect to other railroads leading to Memphis, and the Ohio and Covington Railroad had been chartered by a Democratic legislature to challenge the James-Kanawha project along the central line of the state. In 1850 political rivalry and competition for state funds had so far prevented the success of any of these efforts.

But the B. and O. Railroad directors resolved in early 1849 "to put the whole line to the Ohio River under contract as speedily as practicable."[69] By the fall of 1850

financing had been arranged and 167 of the 200 miles between Cumberland, Maryland and Wheeling were under construction.[70] While Wheeling citizens eagerly anticipated the railroad's arrival, commercial interests at Pittsburgh worried that access to the B. and O. one hundred miles downriver would short-stop freight from the New West which had formerly travelled eastward from their city. To these Pittsburghers the Wheeling bridge not only obstructed river traffic but also facilitated western land traffic, all of which would soon enrich Wheeling and the B. and O. Railroad to their own loss. In 1849 they appealed to Harrisburg for help, on the grounds that obstruction of Pittsburgh's steamboat traffic would injure Pennsylvania's toll revenue from the state improvement system.[71] When Pennsylvania proceeded against the bridge company, the state's claim of lost toll receipts could not be substantiated.[72] Anxiety over potential loss on the state's costly improvements had mobilized the administration, for where the Richmond legislature had been sparing in subsidizing improvements, the Harrisburg legislature had been over-generous, and sale or retention of Pennsylvania's unprofitable system was an important political issue.

Pennsylvania's political factions in the early nineteenth century often bore little relation to their national party affiliations. On economic matters political attitudes corresponded to the fortunes of physical regions of the state. How the major regions of the state viewed

their transportation needs, and the relative political strength of regions (and their coalitions) had determined Pennsylvania's internal improvement policy.[73]

The oldest settled region of Pennsylvania encompassed the southeastern one-third of the state. Colonized in the late seventeenth and early eighteenth centuries, the fertile tidewater and piedmont lands drained by the Schuylkill and Susquehanna rivers were separated from the remainder of the state by the Alleghany Mountains. The prosperous farms of the Southeast produced vegetables and dairy products for the Philadelphia markets as well as grain and tobacco for export. By the 1830s and 1840s woolen mills around Philadelphia and iron manufactories and coal mines up the river valleys provided jobs for both the excess native population and immigrants from Ireland and Germany. By 1850 the thirteen counties comprising the Southeast contained forty-five percent of the state's population.[74] But as the population grew Philadelphia's commerce declined. The National Road and Susquehanna River drew away some of the products of the back-country and much of the produce of the counties through which the river flowed. After 1825 shippers in the New West and the northwestern counties of Pennsylvania began to send their products by way of the Erie Canal. To regain the commerce lost to Baltimore and New York, Philadelphia merchants supported internal improvements, but the farmers of the Southeast proved less willing to improve transportation for their competitors.

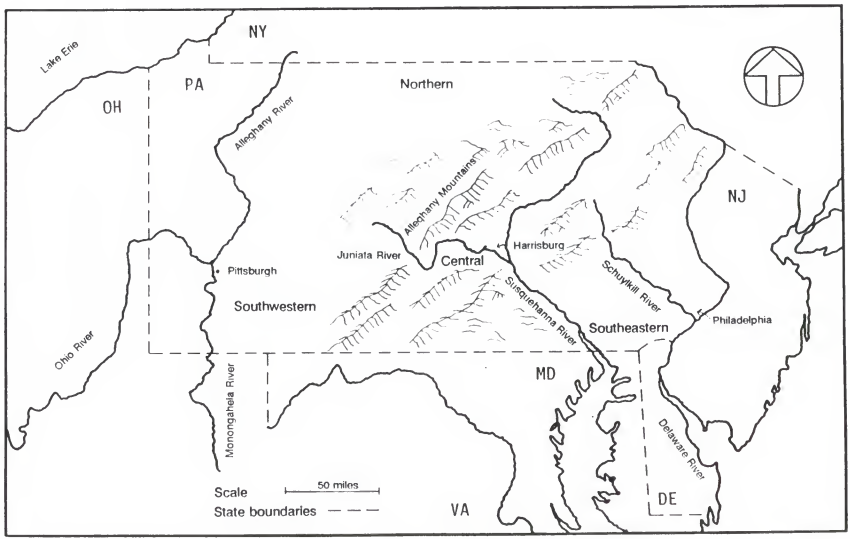


Figure 2. Pennsylvania Geographical Regions

Movement of goods and people over the Alleghany Mountains had been Pennsylvania's major transportation problem since the French and Indian War. Initially settlement and trade had flowed southwestward down the Alleghany valleys into Maryland and Virginia. The few settlers in the Pennsylvania mountain valleys during the eighteenth century eked out an existence. North of the mountains frontier conditions existed until well into the nineteenth century, partly because the Southeast and Southwest offered better farm lands, but also because speculators held large tracts for development of their timber and coal resources. As the nineteenth century advanced farmers in the central Alleghany area and speculators in northern lands supported internal improvements. But farmers along the northern and southern boundaries of the state, who shipped their produce via the National Road or by way of New York, refused to tax themselves to benefit other regions.

Beyond the mountain barrier lay the Monongahela and Alleghany River Valleys. The City of Pittsburgh developed where these two rivers joined to form the Ohio River. Only a frontier outpost during the Revolution, Pittsburgh's population in 1830 had grown to over 12,000, and by 1850 the city and surrounding county contained almost 200,000 people.[75] Grain farms occupied the river valleys and sheep grazing developed in the rugged hills of the Transalleghany region, but the relatively high cost of transportation

across the mountains closed that avenue of trade for all but the most valuable commodities. Instead, western products were shipped downriver to market at New Orleans, while expensive necessities such as salt, spices, sugar and manufactured goods travelled overland from the East. Westerners soon found their own salt supplies, and where raw materials were available, they manufactured those items such as ironware and glass whose transport costs were particularly high. But the one-way nature of trade was far from ideal, and voters in Transalleghany Pennsylvania considered internal improvements critical to the development of the region.

In the late eighteenth century western Pennsylvanians had petitioned their legislature for improved transportation. In 1785 the legislature responded by authorizing the expenditure of L2,000 to widen Forbes' Road from east of the Alleghany Mountains to Pittsburgh.[76] In 1806 Pennsylvania embarked on a policy of subscription to the stock of turnpike companies and by 1820 a through turnpike between Philadelphia and Pittsburgh had been completed.[77] Wagons of double the pre-turnpike capacity still managed to reduce the time between Philadelphia and Pittsburgh and freight rates fell by sixty percent.[78]

State subscription represented an important form of internal improvement support in Pennsylvania.[79] Legislators and the public believed that state participation in "mixed" transportation corporations would develop remote areas,

enhance property values, promote citizen enterprise, provide a measure of state direction and allow the state to share in the profits of these endeavors. By 1820 state investments in transportation corporations included over $1 million in turnpikes, $182,000 in bridges and $50,000 in canals.[80] By the early 1840s state subscriptions had reached over $2.3 million in turnpikes, $514,000 in bridges, $645,000 in canals and $340,000 in railroads.[81]

However, state subscription to private endeavors did not solve the immediate problems of Philadelphia's merchants. The opening of the Erie Canal had diverted some Pennsylvania turnpike traffic to the north. Philadelphia businessmen were convinced that the less expensive canal and the free Cumberland Road increased the commerce of New York and Baltimore at their expense.[82] Public discussion centered on whether the state should build an internal improvement system connecting Philadelphia and Pittsburgh, and whether such a system should be composed of canals or railroads. The Pennsylvania Society for the Promotion of Internal Improvements and other proponents of a canal system emphasized Pennsylvania's "urgent need" to recapture the commerce lost to the New York system and pointed to the Pennsylvania legislature's eight-year delay in acting.[83]

In their effort to provoke legislative action advocates of a state canal system overstated its merits and denied the viability of a longline railroad system.[84] Fearing opposition in areas remote from the Philadelphia-Pittsburgh

axis, canal enthusiasts acknowledged that branches to the Main Line would enhance the entire system. Where geographical conditions made the possibility of canals remote, proponents of the state canal system promised shortline railroads. In February 1826 the Pennsylvania General Assembly succumbed to public clamor by enacting legislation to begin construction on the east-west canal portion of the State Works.

As an economic venture the State Works never achieved the success its advocates predicted, nor did it solve Philadelphia's problem of lost trade. The route of the Main Line required overcoming a vertical rise of over 2,000 feet. Only repeated surveys finally convinced advocates of a canal through the mountains that a portage railroad would provide a more economical and expeditious solution. But the savings in construction cost for the mountain section of the Main Line were soon dissipated by sectional interests logrolling for branch lines. Solving one problem also created another: the hybrid nature of the Main Line imposed transshipment between land- and water-based sections of the system, and the steep grades on each side of the Alleghany barrier required slow passage through 174 locks and over the ten inclined planes of the portage railroad.[85]

Given these difficulties many New West shippers continued to use the longer but less complicated New York system. Less toll revenue increased the financial burden on the Pennsylvania public. Before embarking on the State

Works Pennsylvania's credit was in excellent condition. By 1835 the completed Main Line annually produced $684,000 in tolls which only covered two-thirds of the interest on the state internal improvement debt of $22 million.[86] From the mid-1820s until the mid-1850s Pennsylvania politics revolved around economic issues related to the State Works.

During the first ten years of the State Works public effort centered on building the Main Line. But beginning in 1827 successive legislatures not only considered funding to continue construction along the Philadelphia-Pittsburgh axis, but also considered initiating branches to the Main Line and noncontiguous improvements.[87] When the 359-mile Main Line opened in 1835, 314 miles of other canals had also opened, and other lines were under construction.[88] Initial enthusiasm for the State Works had been nonpartisan, and for the first few years of construction sectional barter for branches maintained broad-based public support.[89] However, rising costs and continual extension of lines forced the legislature to enact direct real and personal property taxes in 1831, and the imposition of taxes, particularly in those areas not served by the state system, brought new demands for retrenchment.[90] Diverging attitudes to the State Works realigned Pennsylvania political parties.

The realignment produced three political parties: Democrats, Antimasons and Whigs.[91] The Pennsylvania Democrats of the 1830s carried the state in presidential elections, returned a consistently Democratic congressional

delegation, controlled two-thirds of the county courthouses, and only lost to the opposition in 1835.[92] While the party of Jackson swept most elections, it was plagued by internal dissension brought about by factionalism, rivalry for federal and state patronage and the awkward characteristics of differing state and federal policies. What made Andrew Jackson popular at the national level--veto of the Bank of the United States charter, tariff reduction and strict interpretation of "national" internal improvements--ran counter to popular opinion in Pennsylvania.[93] While Democratic contenders for state office could not afford to repudiate Jackson, their appeals to Pennsylvania voters resonated to state policies at variance to national Democratic goals.[94] With little semblance of party discipline, deviation from national principles often produced rival Democratic campaigns at the state level.

When the Democratics split into factions, coalition of the remaining two parties carried the opposition into office. The Antimasons were the strongest opposition party in the 1830s, but the regional nature of their appeal denied them effective statewide organization.[95] In Pennsylvania Antimasonry stood against not only the Masonic organization as a symbol of outmoded privilege and undue influence, but also the rechartering of the Bank of the United States and state funding of internal improvements. Such a political stance drew voters in the northwestern and southwestern

parts of the state, along the southern tier of counties and in the Southeast (but not Philadelphia).

Opposition to Jackson's internal improvement policy, his veto of the bank charter and the administration's attitude to the Woolen Tariff led disillusioned commercial interests and western nationalists to unite as the Whig party. [96] In Pennsylvania Whigs supported the State Works, favored a state charter for the bank, and endorsed a protective tariff. Whigs often won state and local elections in the commercial centers of Philadelphia and Pittsburgh, but failed to mount campaigns in Democratic strongholds. The sharp distinctions between Whig and Antimasonic policy on the economic issues of banking and the State Works made the union of the two parties difficult on principle, but in the interest of expediency they allied on gubernatorial tickets.

In 1835 the Pennsylvania Antimason-Whig coalition won the governor's race, the majority of seats in the House and additional seats in the Senate.[97] Moderate Antimasons joined with Whigs in the 1836 legislative session to secure a state charter for the Bank of the United States by combining the charter with an irresistible scattering of new internal improvements and a bank bonus including subscription to others.[98] Where proposed state works did not provide sufficient incentive for Democratic legislators to vote for the bill, the bonus provided additional stimulus. In February 1836 the bill passed both houses of

the legislature. Along with the distribution of the federal treasury surplus in 1837, the bonus encouraged the Pennsylvania legislature to consider further expansion.

But the Panic of 1837 forced the suspension of specie payment and closed banks. Political reaction to the Panic further divided Democrats and Antimasons into factions of Hard Money and Paper Money men. In a bid to retain his office by luring Paper Money (Improvement) Democrats to support his ticket, the incumbent Antimasonic governor endorsed passage of an omnibus internal improvement bill similar to one he had vetoed the year before.[100] This strategy sufficiently bankrupted Antimasonic policy that after the Democratic victory at the polls, the Antimasons declined rapidly and disappeared after the election of 1844.[101]

The 1838 election returned a Democratic governor and statehouse. The new administration found that inadequate receipts from the State Works made emergency loans repeatedly necessary to meet impending interest payments on the state internal improvement debt. In the unstable financial atmosphere of the years following the Panic of 1837 the amount of funds required admitted of only one choice--the banks. As a result the Improvement Democrats of the early 1840s found themselves borrowing not only to meet interest installments and make needed annual repairs to the State Works, but also to continue to expand the system. In order to secure such loans, the legislature and the governor

acquiesced in postponement of the resumption of specie payments and issuance of bank notes in small denominations; but loans and concessions only postponed the inevitable.[102]

By 1842 faith in state credit was so limited that the Bank of North America found no takers on their offer to sell their state bond holdings at a fifty percent discount.[103] The Democratic administration, unable to negotiate another loan, issued interest certificates. Radical Democrats demonstrated against the adminstration, declared the state debt unconstitutional and proposed the immediate sale of the State Works. Continued economic adversity caused by the recessions of 1839, 1841 and 1842 forced the legislature to impose direct taxes and helped cause another run on the banks. More bank closures and suspensions followed. By March 1842 continual interest installment crises and criticism of bank specie suspensions led the Paper Money and Hard Money Democrats to reunite and pass a bill for the immediate resumption of specie payment.[104]

Reunion of the Democrats also coincided with growing public disillusionment with state sponsorship of internal improvements. The financial embarassment of 1842 and inadequate returns on investment led the 1843 legislature to begin liquidation of state holdings in mixed enterprise corporations. Stocks in transportation companies with a face value of approximately $2 million were sold immediately at a loss.[105] Sales continued until only $1.7 million of mixed investment remained.[106]

In 1844 the legislature expanded its liquidation proceedings by offering to sell the State Works for $20 million. In the referendum on the sale voters cast 124,000 ballots to save the system against 146,000 to sell it.[107] Those voters who favored the sale of the State Works cited its poor yield (approximately three percent annually on an initial investment of $12 million) and increasing competition from railroads.[108] Opponents of the sale argued that the purchasing organization would be "a monopoly of fearful magnitude" which would threaten democratic government.[109] They also predicted that the state would eventually realize a substantial profit on the initial investment. Voting on the referendum cut across party lines, exhibiting marked regional characteristics based both on whether the State Works had provided local benefits, and on whether proposed rail lines offered greater ones.[110]

By the mid-1840s railroads had caught the attention of the Pennsylvania public. In 1842 the Baltimore and Ohio Railroad had reached Cumberland, Maryland and connection by rail of the Ohio River Valley with eastern seaports no longer seemed visionary. The Virginia legislature had chosen to keep the Maryland line on a northern route, and Pittsburgh, recognizing that such a line would cut off some of her Ohio River trade, tried to secure the Baltimore and Ohio terminus. But crossing southwestern Pennsylvania required the permission of the Pennsylvania legislature and the B. and O.'s charter was about to expire.[111]

In the spring of 1845 Pittsburgh friends of the Baltimore and Ohio in the legislature requested an extension of the rail line's franchise. Philadelphia commercial interests, alerted to the maneuver, managed to have the request tabled.[112] In the 1846 legislative session the two groups squared off, Philadelphia interests now coming forward with a rival proposal for the "Pennsylvania Railroad." Debate was heated and the subsequent votes nearly even. Both groups received their charters, but the legislature imposed provisos on both companies: if the Pennsylvania Railroad organized, attained a stock subscription of $3 million and had 30 miles of road under construction by July 30, 1847, the B. and O. charter was void; if the Pennsylvania Railroad failed to achieve the stated goals, its charter was void.[113]

By mid-century Pennsylvania had divested most of its stock in transportation corporations, although no buyer had been found for the state system. Disillusionment with the State Works and enthusiasm for potential railroad trade led Pennsylvania municipalities to invest heavily in railroads.[114] At the same time Pennsylvania's political parties ceased to maintain effective stances on internal improvement issues as local concerns cut across party lines.

The Virginia picture was similar. Regardless of political affiliation Virginia voters expected government participation in internal improvements, and Virginia municipalities also eagerly subscribed to railroads. At

issue in the Wheeling Bridge case were not conflicting concepts of the role of government in transportation development, but the relative rights of users of land- and water-based systems in the expanding American transportation network.

Notes

1. Joseph Stancliffe Davis, Essays in the Earlier History of American Corporations, Harvard Economic Studies, no. 16 (Cambridge, MA: Harvard University Press, 1917), 118, 188, 216. On the importance of the Potomac and James River companies see: Douglas R. Littlefield, "The Potomac Company: A Misadventure in Financing an Early American Internal Improvement Project," Business History Review 58 (1984): 568-569; and Wayland Fuller Dunaway, History of the James River and Kanawha Company, Studies in History, Economics and Public Law, no. 236 (New York: Columbia University Press, 1922).

2. Ibid. 227-230. See also Joseph Austin Durrenberger, Turnpikes: A Study of the Toll Road Movement in the Middle Atlantic States and Maryland (Valdosta, GA: the author, 1931).

3. The "free" legislation of the early nineteenth century is similar to today's enabling legislation allowing for charters to be devised by regulation.

4. Carter Goodrich, Government Promotion of American Canals and Railroads, 1800-1890 (New York: Columbia University Press, 1960), 3-16.

5. Norman K. Risjord, Chesapeake Politics, 1781-1800 (New York: Columbia University Press, 1978), 243.

6. Davis, 227.

7. Risjord, 619.

8. Littlefield, 562-585.

9. Annals of Congress, 7th Cong., 1st sess., 1097-1126.

10. Ibid. 1124-1126.

11. 2 U.S. Stat. 226.

12. The committee found that Pennsylvania was so interested "to facilitate the intercourse" between Philadelphia and Pittsburgh, as well as the western country that "no doubt can remain but they will, in a little time, complete a road from Philadelphia to Pittsburg, as good as the nature of the ground will permit." Maryland was also engaged in road-building to connect Baltimore, Washington, Frederick and Williamsport. But the committee felt Maryland had "no particular interest to extend their road across the mountains (and if they had it would be impracticable, because the State does not extend so far.)" Virginia had similar problems. New roads were being constructed to the northwest of Richmond, but the seventy miles closest to the Ohio River "are bad, for the present, and probably will remain so for a length of time, as there seems to be no existing inducement for the State of Virginia to incur the expense of making that part of the road passable." U.S. Congress, Senate, Cumberland Road, 9th Congress, 1st sess., (1806) in American State Papers. Miscellaneous, 1:422-433.

13. Topographical considerations are discussed at length in Catherine Blaskovich Smith, "The Terminus of the Cumberland Road on the Ohio," West Virginia History 14 (1953): 197-200.

14. Cumberland Road Commissioners [Thomas Moore, Eli Williams and Joseph Kerr], First Report on the Cumberland Road (1806) American State Papers. Miscellaneous. 1:475. Smith, "Terminus", 201-238 describes Steubenville, Ohio and Wellsburg and Wheeling, Virginia vying for the terminus.

15. Funds of $380,000 had been expended on the Cumberland Road up to 1816. In 1816 Congress appropriated an additional $300,000. See Jeremiah Simeon Young, A Political and Constitutional History of the Cumberland Road (Chicago: University of Chicago Press, 1902), 49-50.

16. Fearful that the free Cumberland Road would reduce trade between Pittsburgh and Philadelphia, Pennsylvania had embarked on a policy of subscription to the stock of turnpike companies connecting the East and West. Five companies chartered to construct segments along the route from Chambersburg to Pittsburgh received $350,000. See Catherine Elizabeth Reiser, Pittsburgh's Commercial Development, 1800-1850, (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1951), 75, 77.

17. The Maryland legislature also authorized turnpike companies but did not fund them. The earliest

companies had been unable to carry out their projects, so in 1805 the legislature chartered the Baltimore and Frederick Town Turnpike Road Company to build the first section of Maryland's road to the West. Subsequent extensions connected the Frederick Pike with the Cumberland Turnpike which in turn connected to the eastern end of the Cumberland Road. Virginia also authorized the improvement of Braddock's Road and chartered the Little River Turnpike to connect to the Cumberland Road. Durrenberger, 38.

18. Annals of Congress, 14th Congress, 2d sess., 851-934.

19. Ibid. 889. The speaker was Daniel Sheffey, a Virginia Federalist.

20. Ibid. 889.

21. Ibid. 865.

22. Ibid. 855.

23. Ibid. 165-171.

24. Ibid. 861, 875, 876. The speaker was Erastus Root, a New York Republican.

25. Ibid. 923. The speaker was Robert Wright, a Maryland Democrat.

26. Henry Adams, History of the United States during the Administrations of Jefferson and Madison, 9 vols. (New York: Scribner's, 1890-1909) 9:150-151; and Douglas E. Clanin, "Internal Improvements in National Politics, 1816-1830," in Transportation and the Early Nation (Indianapolis, IN: Indiana Historical Society, 1982), 34.

27. Curtis Nettels, "The Mississippi Valley and the Constitution, 1815-1829," Mississippi Valley Historical Review 11 (1924-25): 332-342.

28. James Monroe, "View of the President of the United States on the Subject of Internal Improvements," May 4, 1822, in James D. Richardson, comp., Messages and papers of the Presidents, 1789-1897 (Washington, DC: Bureau of National literature and Art, 1907), 2:169, recapitulates previously enacted improvements.

29. James Madsion, "Veto Message," March 3, 1817, in Richardson, 1: 585.

30. James Monroe, "Annual Message," December 2, 1823, in Richardson, 2: 216.

31. Watercourses had been important avenues of travel since the colonial period, and state charters had created river improvement companies charged with removing snags and obstructions and building canals around rapids. At the federal level Gallatin's Report had identified a number of river projects under construction in 1801, and the Bonus Bill had been amended to include watercourses. By the 1820s increased steamboat tonnage, particularly in the West, pointed to the commercial significance of improving rivers.

32. Described in Forest G. Hill, Roads, Rails, and Waterways: The Army Engineers and Early Transportation (Norman, OK: University of Oklahoma Press, 1957), 165.

33. An excellent history of the Erie Canal is Nathan Miller, The Enterprise of a Free People: Aspects of Economic Evelopment in New York State during the Canal Period, 1792-1838 (Ithaca, NY: Cornell University Press, 1962).

34. George Rogers Taylor, The Transportation Revolution, 1815-1860, vol. 4 of Economic History of the United States (New York: Holt, Rinehart, Winston, 1951), 32-33.

35. Ibid.

36. Miller, 115.

37. The following description of Whig and Democrat economic attitudes is derived from Joel H. Silbey, The Shrine of Party: Congressional Voting Behavior, 1841-1852 (Pittsburgh, PA: University of Pittsburgh Press, 1967) 27-32; and Michael F. Holt, The Political Crisis of the 1850s (New York: John Wiley and Sons, 1978), 104-112.

38. The Democratic platform is quoted in Silbey, 31.

39. Silbey, 43-45, 56-57, 75-76, 83-84.

40. Virginia's geographical and political regions are described in Charles Henry Ambler, Sectionalism in Virginia from 1776 to 1861 (Chicago: University of Chicago Press, 1910), 1-23; and Otis K. Rice, The Allegheny Frontier: West Virginia Beginnings, 1730-1830 (Lexington, KY: University of Kentucky Press, 1970).

41. "Rolling" roads were so-called because tobacco hogsheads were rolled along them from inland plantations to landings on navigable creeks.

42. Durrenberger, 37; and Raymond C. Baily, Popular Influence upon Public Policy: Petitioning in Eighteenth Century Virginia, (Westport, CT: Greenwood Press, 1979), 114-116.

43. Petition 1447 quoted in Freeman H. Hart, The Valley of Virginia in the American Revolution, 1763-1789 (Chapel Hill, NC: University of North Carolina Press, 1942), 153.

44. Wayland Fuller Dunaway, History of the James River and Kanawha Company, Studies in History, Economics and Public Law, no. 236 (New York: Columbia University Press, 1922) 44-45.

45. Albert Gallatin, Report on the Subject of Public Roads and Canals (Washington, DC: Weightman by order of the U.S. Senate, 1808, facsimile reprint, New York: Augustus M. Kelley, 1968), 28-30.

46. Report of the Commissioners Appointed to View Certain Rivers within the Commonwealth in 1812 (Richmond, 1819), quoted in Carter Goodrich, "The Virginia System of Mixed Enterprise," Political Science Quarterly 64 (1949): 358.

47. Goodrich, "Virginia System," 359-361.

48. Paul W. Gates, The Farmer's Age: Agriculture, 1815-1860, vol. 3 of Economic History of the United States (New York: Holt, Rinehard Winston, 1960), 3-5.

49. Ambler, 111-112.

50. Gates, 5-6.

51. Rice, 156-167, 308-321.

52. Richard P. McCormick, The Second American Party System: Party Formation in the Jacksonian Era (Chapel Hill, NC: University of North Carolina Press, 1966), 182.

53. Goodrich, "Virginia System," 365-370.

54. Dunaway, 67-92.

55. Littlefield, 583-585.

56. Commercial interests in seaports often allied with the western faction against Tidewater plantation owners.

57. Ambler, 177.

58. McCormick, 191-193.

59. Isaac Fegley Boughter, Internal Improvements in Northwestern Virginia: A Study of State Policy prior to the Civil War (Pittsburgh, PA: University of Pittsburgh diss., 1930), 146-148.

60. Dunaway, 89.

61. Ambler, 179-180.

62. Ibid. 90-91,

63. Ibid. 116.

64. An important southwestern improvement of this period was the Virginia and Tennessee Railroad which received $2 million in state grants between 1847 and 1850.

65. Ibid. 159-160.

66. Ambler, 241.

67. Ibid.

68. Goodrich, "Virginia System," 364.

69. [William Prescott Smith], A History and Description of the Baltimore and Ohio Railroad . . . (Baltimore, MD: John Murphy and Company, 1853), 76.

70. John F. Stover, Iron Road to the West: American Railroads in the 1850s (New York: Columbia University Press, 1978), 70.

71. Record: State of Pennsylvania v. the Wheeling and Belmont Bridge Company, William Ottersan, and George Croft ([Washington, DC]: Gideon, [1850]), 5-6, 135, (hereafter cited as Record; and Reuben Hyde Walworth, Oder of Reference of the Supreme Court of the United States in the Case of the State of Pennsylvania, Complainant, against the Wheeling and Belmont Bridge Company and Others, Defendants, with the Proofs Taken . . . (Saratoga Springs, NY: G.F. White, 1851), 84.

72. Speaker of the Pennsylvania Senate George Darsie presented receipts over the Main Line for the 1847 and 1848. But of the five commodities identified, two (tobacco and lard) showed descreased receipts (before the bridge could have affected river carriage). At best Pennsylvania's presentation of injury was inconclusive. Testimony of George Darsie, Record, 274.

73. Pennsylvania's geographical and political regions are

described in John F. Coleman, The Disruption of the Pennsylvania Democracy, 1848-1860 (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1975), 1-6; Louis Hartz, Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948), 9-11; and Charles McCool Snyder, The Jacksonian Heritage: Pennsylvania Politics, 1833-1848 (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1958), 3-13.

74. Total population for the area was 1,043,036, of which 408,762 lived in Philadelphia County. Coleman, 3.

75. Michael Fitzgibbon Holt, Forgining a Majority: The Formation of the Republican Party in Pittsburgh, 1848-1860 (New Haven, CT: Yale University Press, 1969), Appendix, Table 3, "Population Increase in City and County", 318.

76. Durrenberger, 13.

77. Reiser, 75, 77.

78. Reiser, 77.

79. Hartz presents an extended discussion of Pennsylvania's mixed enterpise policy, 82-112.

80. Hartz, 84, 85.

81. Ibid. 87, 84, 85.

82. The history of the search for a competitive transportation system in Pennsylvania has been told comprehensively in Hartz, 127-142; and in Julius Rubin, Canal or Railroad? Imitation and Innovation in the Response to the Erie Canal in Philadelphia, Baltimore and Boston Transactions of the American Philosophical Society, n.s. 51, pt. 7 (Philadelphia, 1961), 15-62.

83. The eight year delay is computed from the defeat of the Bonus Bill in 1817 and New York's subsequent passage of a canal law.

84. The interpretation in this paragraph is based on Rubin, 29-52.

85. Taylor, 44; Goodrich, Government Promotion, 65-66.

86. Hartz, 149.

87. Ibid. 148.

88. Goodrich, Government Promotion, 65.

89. Hartz, 148.

90. Snyder, 79.

91. Democrat, Antimason and Whig names were adopted at varying times. For example in Pennsylvania the remnants of the National Republicans organized and adopted "Whig" in the mid-1830s, McCormick, 143.

92. Coleman, 14.

93. Hartz, 22-25.

94. McCormick, 139-140.

95. Snyder, 27-29.

96. Ibid. 26-27.

97. Ibid. 67.

98. Snyder, 68-81, provides an extended discussion of the strategy behind the bill from the perspectives of both the bank and the coalition. Bank recharter in Pennsylvania was not as partisan an issue as it was at the national level. For example, when Congress considered the federal recharter of the bank, all of the Pennsylvania delegation but two (one of whom did not vote) voted for the recharter. The majority of the delegation were Democrats. See Snyder, 25.

99. Pennsylvania's share of the Surplus Revenue was $3 million. The Bank Bonus consisted of $2 million for state improvements and an additional $6 million plus for loans to improvement companies, Goodrich, Government Promotion 67.

100. In 1837 the legislature passed an omnibus improvements bill which was vetoed by the governor. Snyder, 124.

101. McCormick, 145.

102. The financial crises are covered in depth by Snyder, 137-140.

103. Snyder, 160.

104. Their reunion and "hard" stance on the banking issue brought Pennsylvania Democrats back in harmony with national Democratic principles.

105. Hartz, 89, 104.

106. The high mark of investment in 1843 was approximately $6.1 million. Hartz, 89, 104.

107. Hartz, 163.

108. Ibid. 161.

109. Quoted in Hartz, 171.

110. Hartz, 52-53, 268.

111. The B. and O. had secured a charter from the Pennsylvania legislature in 1828 and an extension on the charter in 1839. The extension expired in 1847. George H. Burgess and Miles C. Kennedy, Centennial History of the Pennsylvania Railroad Company, 1846-1946 (Philadelphia: Pennsylvania Railroad Company, 1949), 35.

112. Snyder, 194.

113. Burgess and Kennedy, 38-39.

114. Goodrich, 70.

CHAPTER IV
WESTERN TRADE AND TRANSPORTATION:
TECHNOLOGY CHANGES DIRECTION

The Louisiana Purchase in 1803 transformed the United States from a coastal to a continental nation. For $15 million the United States acquired 828,000 square miles of new territory and vast natural resources, but most importantly to the one million Americans already settled west of the Alleghany Mountains, it brought consolidation of the Mississippi River system.

The Mississippi basin stretched from the Great Lakes to the Gulf of Mexico and from the Alleghany Mountains to the Rockies. The main river and its forty-five tributaries formed a navigable system 16,000 miles long.[1] Most of the settlers in the West in 1803 had taken advantage of this system to reach their destinations, either by floating down the Ohio River from its headwaters in the Alleghany Mountains or by ascending the Mississippi River from its mouth.

The geography of the newly acquired territory was to have profound effects on its settlement, productivity and trade patterns, as well as its political and economic relationships with the remainder of the United States. During the first half of the nineteenth century western concerns centered on farm production and economical routes

to market. Scarce capital and long distances initially forced westerners to take advantage of the avenues of trade which nature had bestowed, but river transport was soon complemented by roads and canals. By mid-century, railroads had begun to compete for passenger traffic and threatened to capture valuable freight traffic as well. The development of western transportation and trade patterns in the first half of the nineteenth century determined where and how railroads would intersect and challenge river, canal and road traffic.

The Wheeling bridge, seen by Pittsburgh steamboat interests as the forerunner of railroad bridges, obstructed the largest Ohio River steamboats on high stages of water. But the bridge also connected two sections of the National Road whose carriers had previously relied on inconvenient ferries, and bridge promoters boasted that it might carry a railroad in the future. Bridge company attorneys argued that the Supreme Court should weigh the importance of the bridge to land traffic against the temporary blockage of a few steamboats. In a broader sense they called on the Court to recognize the relative rights of land and water traffic and to consider the Wheeling Bridge case in the context of existing and future western trade and transportation patterns.

The needs of settlers in the Transalleghany area had figured in national politics since the Confederation period. In the early 1780s New York's and Virginia's cession of

their western lands led to the organization of the Northwest Territory, to its systematic survey and sale, and to the formulation of eventual statehood requirements. In the first fifteen years of the new nation federal policy had countered British and Spanish claims to western areas, removed Indian restraints on settlement, and arranged liberal purchase terms for western lands, but had not funded an internal improvement program.

Ohio's application for statehood in 1802 involved the federal government in building roads to the New West. The compact proposal accepted by Ohio the following year contained a provision that two percent of the net proceeds from federal land sales in the state would be applied to building roads from the navigable rivers emptying into the Atlantic "to . . . and through" the state. A subsequent congressional report indicated that the western terminus of the National Road should be on the Ohio River between Wheeling and Steubenville. Commissioners were appointed to survey the route, the eastern portion of the road was laid out, and construction began. In 1806 problems arose over the selection of the western portion of the route and its terminus, when citizens of the river towns within the bounds of the congressionally designated area lobbied the commissioners and the President to choose the route to their communities.[2]

Construction proceeded slowly due to the difficulty of the terrain, high construction standards (and consequently

high costs) and low appropriations.[3] Economic hardships associated with the British blockade of the American coast in the War of 1812 also slowed construction. But the blockade forced Americans to trade with one another across the mountains instead of relying on seaborne commerce. The expense and inconvenience of overland exchange led to increased public demand for internal improvements in the immediate postwar period.

In 1816 Congress ended ten years of indecision by appropriating sufficient funds to complete the western portion of the National Road to Wheeling, Virginia.[4] "One of the best roads in the world over the chains of mountains which separate the western from the Atlantic waters, and which, but a few years since, were supposed to present insurmountable obstacles to a safe and easy intercourse" would be complete in two years.[5]

The new road brought an economic boom at its western terminus. Cost for the carriage of goods was halved, as was time enroute. Merchants in nearby Pittsburgh realized that Wheeling's success could spell their own disaster. Pittsburgh was already suffering from the glut of British goods dumped on American markets after the War of 1812.[6] Diversion of emigrants to the free National Road to the south would further distress Pittsburgh businesses. Pittsburgh citizens called for immediate completion of the state turnpike system connecting their city with Philadelphia.[7] Five companies constructed segments along

the route with the aid of state subsidies, and by 1820 a through turnpike had been completed. Wagons of double the pre-turnpike capacity still managed to reduce the time between Philadelphia and Pittsburgh, and freight rates fell by sixty percent.[8]

The National Road and the Pennsylvania Turnpike represented early federal and state responses to the need for interregional transportation, but the most important interregional system in the first half of the nineteenth century remained the navigable rivers of the West. As self-sufficiency and barter in the newly settled areas gave way to market-oriented agriculture, farmers and merchants relied on the long down-river route to New Orleans to send their goods to east coast markets.[9]

On western rivers there were two methods of shipping produce: boats propelled by the current, and after 1817 the new technology of boats powered by steam.[10] Farmers and merchant-boatmen owned and operated many of the water-propelled craft which plied the western waters. Beginning on small creeks near their farms and stores they descended to the head of steam navigation where they either sold their produce and wares to merchants, or continued downriver to market. Typical of these owner-operated craft were flatboats and keelboats. Flatboats were essentially large, rectangular floating boxes, usually built by their owners to carry goods to market or bought to move a family and its possessions. Keelboats, almost as popular as flatboats in

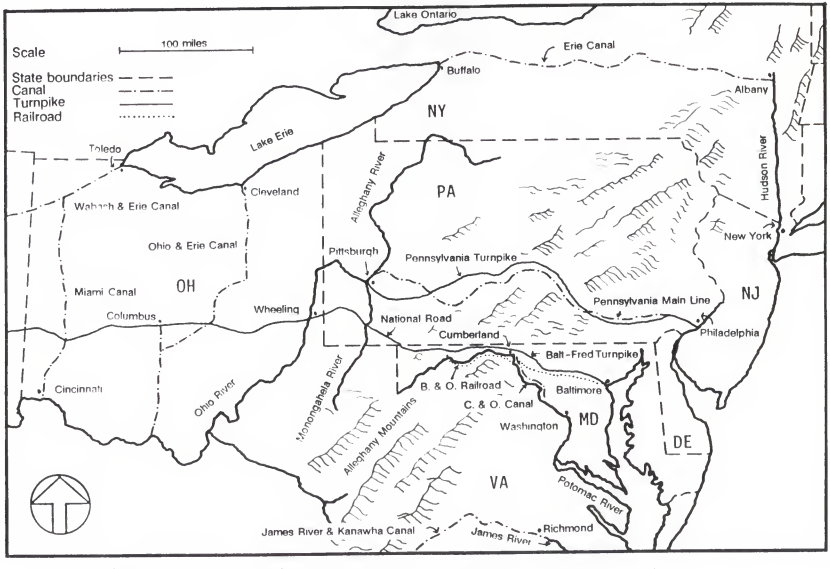


Figure 3. Developing East-West Trade Routes (about 1840)

the early years of the nineteenth century, had the added advantage of upstream travel. These boats took their name from the long and heavy keel around which they were built. They could be sailed, poled, bushwhacked or cordelled upriver at a maximum speed of thirty miles per day. Downstream speed for flatboats and keelboats was sixty miles per day.

Immigrants floated downriver on the spring rise, found a place to settle and dismantled their boats for building materials. Keelboat and flatboat men shipped the recent harvest on the fall rise and sold their produce at New Orleans in January and February. Flatboats were then broken up and auctioned, and their crews either sought passage by sea to Baltimore and Philadelphia or walked home. Keelboats returned upriver. In the first decade of the nineteenth century the round trip took six months.

By the early 1820s the keelboat trade felt the impact of steamboat competition. Upstream tonnage on the lower Mississippi River, which had never exceeded ten percent of the downstream traffic, was immediately captured by the faster and cheaper steamboat. However, along the upper reaches of the Mississippi River system, where the current was not as strong and the water was shallow, keelboats continued in use, particularly in dry seasons of the year. At Pittsburgh as late as the 1840s keelboat arrivals equalled one fourth of the steamboat arrivals at city wharves.[11]

Flatboats were slower to feel the impact of steamboat competition. They continued to be used extensively to transport raw materials, semi-manufactured products (lumber, pig metal, salt, stone and brick) and bulk produce (pork, whiskey and flour). New Orleans flatboat arrivals rose from 598 in 1814 to 2,792 in 1846-47, with more than 2,200 of the latter boats arriving from points in the Ohio Valley.[12] Flatboat trade within the Ohio Valley was also extensive. About 100 boats floated down the Monongahela and Alleghany rivers to Pittsburgh in 1826, while in the early 1840s about 2,000 boats per year made the same trip.[13] Cincinnati had an even larger flatboat trade. By the late 1840s about 3,000 flatboats tied up at the city wharf each year, and an estimated 5,000 more tied up along the remainder of the waterfront.[14] But while the absolute numbers of flatboats increased into the 1840s, by the early 1820s steamboats already accounted for the greater share of river tonnage.[15]

In 1811 the first steamboat on western waters completed the 2,000 mile trip downriver from Pittsburgh to New Orleans.[16] In 1815 the Enterprise made the first roundtrip between Pittsburgh and New Orleans, and by 1817 the feasibility of roundtrip service had been established.[17] By 1820 sixty-nine steamboats of 13,890 aggregate tons operated on the Ohio-Mississippi River system.[18] During the decade 1821-30 225 more boats were built in the West, and the occasional steamboat arrivals of the 1810s had become

routine activities in leading river cities.[19] By 1830 the steamboat dominated all forms of travel on western waters.[20]

The capture of western trade by the steamboat was facilitated by its ability to respond quickly to public demands.[21] Steamboat carrying capacity expanded by increased numbers of steamboats in service and by improved ratios of cargo capacity per measured ton. New boats could be brought into service quickly because of their low cost and short construction time. Structural development was also aided by the absence of an established building tradition and the short lives of the boats. During the antebellum period the entire western steamboat tonnage was renewed every four to five years.

The primary objective of western steamboat builders was to design boats that could carry heavy loads over long seasons in the shallow waters of western rivers. The most important design problem in the structural evolution of the western steamboat was to provide lightness of draft in relation to tonnage and cargo capacity. Increasing boat length and breadth while diminishing draft maintained the volume of the hold, and during the first few years of western boat building vessels in the same tonnage classes became twenty percent longer, five percent broader, and only two-thirds as deep.[22]

Redesigning the form of the vessel required the relocation of functions. By the 1830s holds had become too shallow for steamboat machinery and bulky cargo, and the

main deck was converted to these uses. This shift required the addition of an upper deck for cabin passengers. The added weight and topheaviness of the new configuration was minimized by light framing and building materials which were soon used throughout the boat and helped to further diminish draft. By the late 1820s designers managed to reduce the two to one ratio of tonnage measurement to cargo capacity on the first boats to one to one.[23] Structural changes also increased by fifty percent the amount of tonnage carried on a given depth of water.[24]

The primary design problem in the mechanical development of the western steamboat was to supply adequate power in relation to tonnage and cargo capacity.[25] Conversion from low pressure to high pressure steam plants in the 1820s provided greater power at less cost in weight and space. Engine builders gained additional power by increasing cylinder size and stroke length. The use of several boilers, as well as refinements of valves, gears and cutoffs, provided more consistent steam pressure and more efficient transfer of power to the boat's propulsive machinery, while developments in paddlewheel design increased the speed and maneuverability of steamboats. Improvements in power plants, propulsion and structural design expanded steamboat transportation service in terms of both speed and carrying capacity per measured ton. By 1830 151 boats of 24,574 tons navigated western waters.[26]

The rapid development of steamboat carrying capacity and the continual entry of new boats in service substantially lowered freight rates. For example, in the Louisville to New Orleans trade rates dropped from $1.00 to $0.625 per hundred pounds downstream and from $5.00 to $1.00 per hundred pounds upstream during the period from the 1810s to 1829.[27] Since transportation costs determined the extent of commercial agriculture in the New West, as freight rates decreased new areas could be put in cultivation with the expectation of profit.[28] Improved acreage in the New West quadrupled between 1810 and 1830, and at the same time farmers obtained larger shares of the selling price of their crops, and consumers paid smaller shares of the purchase price for transportation.[29] Increases in tilled land coincided with booms in staple prices and land sales, and prosperity encouraged new settlement.[30] Between 1810 and 1830 the Transalleghany population tripled.[31] Improved transportation along the natural waterways of the West linked the western one-fourth of the American population to New Orleans markets and connections to the Atlantic seaboard and abroad.

The first three decades of the nineteenth century also marked the development of artificial waterways across the Alleghany barrier. In 1825 the State of New York completed the 364-mile Erie Canal connecting the Hudson River at Albany with Lake Erie at Buffalo, and four years later the Welland Canal connecting Lakes Erie and Ontario provided a

second line of travel between New York and the inland waterway of the lakes. Completion of the Erie Canal reduced freight rates from Buffalo to New York City from 19.12 cents per ton-mile to 1.68 cents, while the speed of shipment doubled.[32] The development of western New York parallelled the new waterway, since the favorable transportation rates of the Erie Canal provided the impetus for expanding cultivation and settlement. The canal counties grew rapidly, and the cities which sprang up along the canal route served as transshipment and processing points. In the mid-1830s Rochester, for example, had twenty-one flour mills grinding 365,000 bushels of wheat and sawmills producing 753,000 feet of boards, 292,500 tons of staves and 1 million tons furniture for shipment on the canal.[33]

By the end of 1829 toll collections on the Erie Canal had grown so large that the commissioners of the state canal fund reported a surplus (after all charges) of more than $563,000.[34] Such phenomenal success sparked nation-wide enthusiasm for canals. Farmers, merchants and land speculators advocated construction of state canal systems linking other rivers along the east coast with the tributaries of the Ohio River as well as linking rivers flowing into the Great Lakes with Ohio basin streams.

Projects connecting the Potomac River and the James River with the Ohio Valley had been underway since 1785.[35] The companies had made important river improvements in the eighteenth century but had suffered financial reverses by

the 1820s. The Potomac Company was reorganized by the Maryland legislature as the Chesapeake and Ohio Company which assumed the responsibility of constructing a grand canal over the Alleghany Mountains to connect to the Monongahela River. The James River Company was taken over by Virginia in 1828 and in 1835 was reorganized as the James River and Kanawha Company. The latter was charged with improving both the James and the Kanawha rivers and connecting them across the Alleghany divide by canal or turnpike. Both the Maryland and Virginia companies received state and municipal support; the C. and O. also received $1 million in federal funds. Unlike the Erie project which crossed the Alleghany divide at an elevation of 650 feet, the two southern projects faced elevations of 2,200 feet, and costs of such construction were prohibitive. Although both projects continued building until the 1850s, neither breached the mountains, or attracted significant western trade.

In 1826 the Pennsylvania legislature authorized construction of improvements to connect the Atlantic and Ohio watersheds by means of the Juniata and Conemaugh rivers. Pennsylvanians had built their turnpike in response to the diversion of land traffic to the National Road, and the opening of the Erie Canal had diverted even more land traffic to the less-expensive canal to the north. Civic leaders in Pittsburgh and Philadelphia recognized that the improvements to the north and south would serve the

interests of New York and southern ports at the expense of their own cities. In the hope of not only maintaining their commerical and industrial positions as suppliers, but also of increasing their sectors of the western market, commercial interests in Pittsburgh and Philadelphia lobbied their legislators for government aid. The solution, an extensive, state-owned canal and portage railroad, was under construction by the late 1820s.[36]

Completed in 1834 along the distance of 359 miles between Philadelphia and Pittsburgh, the Pennsylvania Main Line consisted of alternating segments of railroad and canal. The eastern section of the system consisted of the Columbia Railroad. The route continued west as a canal along the Susquehanna and Juniata rivers to Hollidaysburg at the base of the Alleghany Mountains. From there the line of travel consisted of thirty-six miles of portage railroad, where cars were hauled over a series of inclined planes by stationary engines. West of the mountains another segment of canal continued along the Conemaugh and Alleghany rivers to Pittsburgh.

Pennsylvanians expected their state work to compete favorably with other lines of transport and to capture large segments of the trade of Ohio, Indiana, Illinois and northwestern Virginia, and Kentucky.[37] The Pennsylvania system provided a shorter route to port than other eastern improvements and a longer operating season than the Erie Canal. The state system also reduced transportation costs.

Formerly "ten men, ten wagons and sixty horses, on an excellent turnpike road over the mountains, [did] the same work that [now] can be done by one man, one boy, one horse and one boat on a canal."[38] Toll receipts increased from $16,000 in 1834-1835 to over $113,000 in 1848-1849.[39]

Tonnage shipped over the Main Line consisted of extractive, agricultural and manufactured products.[40] Extractive products such as lumber, coal, iron, ashes, and stone did not contribute significantly to canal tonnage, but large quantities of salt were shipped westward.

Agricultural products made up an important segment of canal traffic. Although the Pennsylvania State Works carried only a fraction of the tonnage of the Erie Canal and the Ohio-Mississippi River system, the Main Line did offer some direct competition to the latter route. Carriage over the canal was safer, warehouse facilities and climatic conditions better, and prices more stable than could be secured on the long downstream journey to New Orleans. In the first fifteen years of traffic on the Main Line western agricultural products, for example butter and cheese, flour, whiskey, corn, lard and tallow, bacon, salt beef and pork, wool and cotton, were shipped east in increasing amounts.

A complementary traffic of eastern manufactured goods arrived at Pittsburgh. Although several western cities engaged in manufacturing (particularly Pittsburgh and Cincinnati) their factories could not meet western demands. By 1846 the Pennsylvania System supplied more manufactured

goods to the Ohio basin than arrived via the upriver trade from New Orleans.[41] Valuable manufactured products sent from the East over the canal included dry goods, groceries, coffee, furniture, hardware, shoes and hats. In 1835 eastern merchandise shipped on the Main Line equalled thirty million pounds; in 1849 eastern merchandise amounted to ninety-four million pounds.

Baltimore's mercantile interests also tried to increase their portion of western trade by means of internal improvements connecting the eastern and western watersheds. Pennsylvanians had chosen to imitate New York's endeavors by building a canal over the Alleghany Mountains. At first Baltimoreans also intended to tap western trade by an artificial waterway. Baltimore commercial interests lobbied for state aid to build a canal connecting their city to the eastern end of the C. and O. Canal.[42] When cost estimates on the construction of the C. and O. tripled in 1826, Baltimore businessmen shifted their interest to the new technology of the railroad. In early 1827 twenty-five leading citizens met to "take into consideration the best means of restoring to the City of Baltimore, that portion of the Western Trade, which has lately been diverted from it by the introduction of Steam navigation and by other causes."[43] Their meeting resulted in the organization of the Baltimore and Ohio Railroad.

From its inception the Baltimore and Ohio Railroad enjoyed the avid support of its namesake city, in part as a

reaction of its merchants to fear that the Pennsylvania Main Line, then under construction, would divert their western trade. The railroad, chartered by the Maryland legislature in 1827 with an initial stock subscription of $4,000,000, was immediately oversubscribed.[44] The line was completed from Baltimore to Harpers' Ferry, Virginia in December, 1834 and in the first year of operation carried more than 72,000 tons of freight.[45]

The line pushed slowly westward and reached Cumberland, Maryland in November, 1842. Eastbound freight doubled immediately. By 1849 the B. and O. carried almost 288,000 tons of eastbound freight and over 63,000 tons of westbound freight.[46] Large quantities of western flour, livestock and coal road the rails to Baltimore. Although 200 miles short of its Ohio River goal, the Baltimore and Ohio Railroad reached Cumberland eight years ahead of the C. and O. Canal, and connected to the eastern terminus of the National Road. In addition to capturing some of the eastward freight of the National Road, the railroad took almost all of the passengers as well. By 1849 165,000 passengers travelled east and west on the B. and O.[47]

While Pennsylvania, Maryland and Virginia attempted to compete with New York's Erie Canal, settlers in the New West improved their own transportation channels. The seaboard states had connected waters flowing eastward into the Atlantic with westward flowing tributaries of the Ohio River. The task of the states of the New West was to

connect their rivers flowing northward into the Great Lakes with the southward flowing tributaries of the Ohio River. In 1825 Ohio commenced construction on the Ohio and Erie Canal which linked Portsmouth on the Ohio River with Cleveland on Lake Erie.[48] Opened to traffic in 1833, the Ohio and Erie stimulated agricultural production along the Muskingum River Valley and contributed to the growth of Cleveland as an important lake port.[49] Ohio's second major canal connected Cincinnati with Toledo in 1845. In the meantime Indiana had started a state canal system in 1832, and in 1843 the Wabash and Erie Canal (a joint venture of Ohio and Indiana) opened between Lafayette, Indiana and Toledo. Reduced transportation costs along these waterways encouraged expansion of agriculture and contributed to the development of Toledo as a lake port.

Ohio farmers had exported 2 million bushels of wheat in 1830; by 1839 3.5 million bushels of wheat left Ohio lake ports, while 300,000 bushels left the state via the Ohio River.[50] During the 1840s Cleveland and Toledo grain exports continued to increase as a result of the larger areas of northern Ohio and Indiana in production. By 1849 Ohio cities on Lake Erie were exporting 7.5 million bushels of wheat annually.[51]

Most of these exports found their way eastward to Buffalo, where combined with the products of the other Great Lakes states, they swelled the tonnage carried on the Erie Canal. In 1846 the tonnage of western states' products had

grown to 410,111, which represented more than twice the tonnage which originated in New York shipped eastward by canal.[52] By 1849 eastbound freight on the canal equalled 1,580,072 tons valued at over $52 million; westbound freight of 315,550 tons, consisting mostly of valuable manufactured products, had an estimated worth of $70 million.[53]

Artifical waterways connecting the seaboard with the interior reduced the cost of transportation to market and thereby expanded the western areas which could be cultivated profitably.[54] Artifical waterways also shifted early nineteenth century trade patterns. Before 1825 the low value of western products relative to eastward transportation costs prohibited the expensive journey across the Alleghany Mountains, and forced farmers and merchants to rely on the cheaper downriver trade. Therefore interregional exchange in the first quarter of the nineteenth century consisted of a three-point counterclockwise system with eastern manufactured goods of high value travelling by wagon over the mountains; products of the Ohio Valley floating downriver by flatboat and keelboat to New Orleans; and the same western products coasting to the Atlantic seaboard. By the 1830s steamboats had reversed trade along the river system, and during the 1830s canals initiated a similar reversal of Transalleghany trade.

By mid-century the Ohio Valley maintained a vigorous inbound and outbound exchange between both the Atlantic and

Gulf ports, while coastwise carriage of western goods slowly died out. Low freight rates on the canals shifted the heaviest western products to the North and East. In order for river transport to maintain its position as the primary carrier of western freight, it had to compete with the canals for what remained. During the 1830s and 1840s the expansion of cotton culture increased the demand for western products at New Orleans, and in addition western boatmen continued to reduce freight rates in their attempt to regain lost trade.[55] Although they were unsuccessful in recapturing the portion of trade lost to the canals, the expansion of western production in the Mississippi basin was so great that it sustained not only the rapid growth of canal traffic, but also continued the absolute increase in river shipments.

In order to reduce their rates to remain competitive with canal carriage, steamboat builders and owners continued to expand boat capacity, reduce trip costs and pass savings along to the shipper. By the late 1840s structural refinements had lowered the ratio of measured tonnage to cargo capacity to one to two.[56] Strategies to reduce trip costs included lengthening the vessel and using new, lighter materials to solve design problems.[57]

After 1840 boatbuilders achieved further weight reduction by decreasing the number of boilers employed on vessels and compensating for the adverse effect of smaller boiler capacity by use of earlier cutoffs, larger pipes and

valves and increased furnace drafts.[58] Engineers obtained greater draft by "natural" and "artificial" methods. The theory behind natural draft assumed that the heated column of exhaust air in the steamboat chimney was less dense than the surrounding air, and that the warmer exhaust was pulled out by the vacuum created at the top of the chimney. According to advocates of natural draft, taller chimneys (by containing the warm air until it reached a higher elevation) increased the differential between air pressures and therefore increased draft. Advocates of artifical draft (produced by fan blowers and steam jets) believed light-weight mechanical methods of increasing draft were more efficient than extension of the heavy iron chimneys.[59] By mid-century horsepower to tonnage ratings had risen to three to one, with bigger boats making faster trips.[60] For example in the Pittsburgh-Cincinnati trade, trips downstream which had taken three or three and one-half days in the early 1830s, were shortened to forty-eight hours by 1850.[61]

In addition to lowering trip costs by designing more efficient boats, rivermen also directed their efforts to removing specific obstructions such as rapids, snags and bars in order to reduce physical risks to vessels. The most formible barriers to navigation on western waters were the series of rapids at Louisville, producing a fall of twenty-two feet in two miles. During the early years of steamboat navigation these falls defined the virtual head of navigation on the Ohio River; only at flood stage could

boats pass over the falls. Canals had been proposed at this site as early as 1804, and Albert Gallatin in his Report on the Subject of Public Roads and Canals in 1808 had identified such an improvement as a national priority.[62] By the 1820s merchants, rivermen and the public of the New West clamored for a canal around the falls, and in 1825 the Kentucky legislature authorized the Louisville and Portland Canal Company.[63] For the next five years the company alternately lobbied for funds and constructed the canal. Appeals to the federal government secured two subscriptions for the project totalling $235,000.[64] In December, 1830 the canal opened to traffic and in its first year of operation collected tolls on 406 steamboats. In the late 1840s almost 1500 steamboats passed through the canal locks annually.[65]

Rivermen also tried to eliminate other hazards in the riverbed by calling for federal action. The first federal appropriation for river improvement, passed in 1824, was earmarked for extracting snags. Subsequent river and harbor acts of the 1820s and 1830s extended the snag removal program along the Missisippi and Ohio Rivers and yielded economic dividends in terms of steamboat life-expectancy. Although three-fifths of steamboat accidents prior to 1849 were caused by snags, the federal snag removal program is said to have increased the life-spans of boats by approximately fourteen percent between 1819 and 1839.[66]

Another important program funded by federal river and harbor acts sought to remove the hazard of sand and gravel

bars by deepening channels through them. Some of these bars rose so high as to constitute serious barriers to navigation at all seasons, others only affected navigation during the lowest stages of the river. While federal expenditures during the 1830s increased the depth of the channel over several bars, in order for the program to be effective, it needed to be carried out all along the river.[67] But the program had hardly begun when appropriations were discontinued.

During the early 1840s commercial conventions in the New West memorialized Congress to increase funds committed for river improvements. In most years Congress responded by appropriating money, and the projects continued. In 1846, however, President James K. Polk vetoed the River and Harbor bill as unconstitutional. Polk's veto message sparked the call for a Rivers and Harbors Convention to meet in Chicago in the following year. The convention's memorial to Congress countered Polk's constitutional arguments, listed appropriations made by other presidents, and presented a "Declaration of Sentiments" defining the federal government's responsibility "to diminish the dangers, and to protect the life and property exposed to them" on the Great Lakes and western rivers.[68] In their subsequent requests for improvements, rivermen demanded not merely a channel cleared of hazards, but one filled with a navigable depth of water over the entire year.

Steamboat builders and owners had also tried to expand the seasonal limitations of river navigation. During the first ten years of steamboat navigation the season lasted only four months.[69] By the 1840s adaptations of boat design and removal of obstructions had extended navigation over an average period of seven and one-half months per year on the Ohio River and for longer periods on the lower Mississippi.[70] But extremes in water level could measurably shorten the average season. Boats with cargoes could not run on less than five to six feet of water or at flood stages, and by mid-century early river improvements occasionally hampered steamboat traffic.[71] For example, within ten years of completion the lock chambers of the Louisville and Portland Canal were too small to admit boats designed for efficient trade: the improvement had become an impediment to river traffic.[72]

The removal of snags lessened the risks to steamboat operations, while the reduction of bars improved the channel and helped lengthen the navigation season. Improved boat design also pushed back season limitations and increased boat speed. Faster boats and longer seasons added to the number of boat trips per year, and further reduced trip costs.[73] Boatmen passed the trip cost savings along to the shipper in lower rates. For example in the Louisville to New Orleans trade between 1830 and 1850 average freight rates dropped by over fifty percent downstream and by seventy-five percent upstream.[74]

Actual rates varied inversely with the height of the river. On the Upper Ohio the extreme spread between yearly high and low water rates reached at times a ratio of one to ten, and rarely fell below a ratio of one to four.[75] Low water rates were prohibitive for the great bulk of western produce and manufactures. Only passengers with urgent travel needs and goods of great value could bear the high cost of out-of-season transportation on western rivers.

But at mid-century there were also few alternatives. Canal rates also reflected the same patterns of high and low water, and canal traffic stopped for long periods each winter because of ice. Canals also closed for repairs. Few railroads extended more than one hundred miles and there were no Transalleghany routes before 1853. Where railroads existed their rates were significantly higher than water transportation.

Even with lowered freight rates steamboat returns on investment remained normal.[76] Over the period 1830 to 1850 annual profits on fully insured steamboats in the Louisville-New Orleans trade have been estimated at ten percent (uninsured rate, between eighteen and twenty percent).[77] Although steamboats maintained only a normal rate of return, investors found them a convenient way to earn money and the industry continued to expand.[78] Between 1830 and 1850 2,160 new vessels were constructed and placed in operation on western rivers.[79] At mid-century 638 steamboats of 134,566 aggregate tons plied these waters.[80]

By 1850 rivers and canals solidly linked western farmers to eastern markets, and reductions in transportation costs during the first half of the nineteenth century allowed farmers to obtain larger shares of the selling price of their produce.[81] Cincinnati prices for western farm products, which had hovered around fifty percent of their Philadelphia, New York and New Orleans prices in 1820, by 1850 surpassed sixty percent and in some commodities approached ninety percent.[82]

The availability of land in the New West and the integrated transportation systems which provided favorable returns on investments in agriculture encouraged new settlement. By 1850 the western population stood at 8.7 million. New settlers brought additional land into cultivation. Between 1840 and 1850 tilled acreage increased by fifty-three percent; between 1850 and 1860 it increased an additional eighty-three percent.[83] Between 1850 and 1860 western freight receipts at the southern gateway of New Orleans doubled, at the northern gateway of Buffalo tripled, and at the northeastern gateway of Pittsburgh and Wheeling quadrupled.[84]

The New West was growing so rapidly that there was enough business for all transportation channels. But overall growth masked shifts in trade. The canals diverted eastward much of the produce of the Ohio Valley, and states in the upper Mississippi basin--Illinois, Wisconsin, Minnesota, Iowa, Missouri--rapidly increased their river

shipments to New Orleans.[85] Although the value of receipts at New Orleans continued to grow, the major part of that growth was attributable to southern staples such as cotton, sugar and molasses.[86] Western products delivered by river which had once constituted fifty-eight percent of receipts at New Orleans, by 1849-50 accounted for only forty-one percent.[87] And the shift in individual commodities was already apparent. Tobacco receipts at New Orleans peaked in 1844; wheat, flour and corn peaked in 1847; and butter and pork peaked in 1849.[88]

By mid-century railroads also participated in western trade shifts. Early railroads developed as local lines under independent management, and water carriers initially viewed them as feeders for the river and canal systems.[89] In the late 1840s long line railroads approaching the Mississippi basin through the Alleghany Mountains captured passenger traffic from the slower canals and turnpikes, and soon competed for valuable freight as well. Railroads could provide more flexible routes than water-based systems, and generally travelled shorter distances between points.[90] Railroads were also faster, more regular, and more dependable than steamboats and canalboats, and they could operate year-round.

Steamboat interests soon realized that the connection of eastern and western rail lines at the Ohio River posed a threat to river traffic in both economic and physical terms. In addition to pulling passengers and freight away from the

rivers, railroads could also obstruct waterways with bridges. The attempt to connect the Baltimore and Ohio Railroad with the railroads of central and southern Ohio provoked the first clash of steamboat and railroad interests along the Ohio River. How this conflict was resolved is an important aspect of nineteenth-century American transportation policy.

Notes

1. Erik F. Haites, James Mak, and Gary M. Walton, Western River Transportation: The Era of Early Internal Development, 1810-1860, Studies in Historical and Political Science, 93rd series, no. 2 (Baltimore: Johns Hopkins University Press, 1975), 13.

2. For example, Albert Gallatin, a resident of the western Pennsylvania area through which the road was to pass, had appealed to President Jefferson to accept the route from Washington, Pennsylvania to Wellsburg, Virginia. Albert Gallatin to Thomas Jefferson, July 27, 1808 quoted in Jeremiah Simeon Young, A Political and Constitutional History of the Cumberland Road (Chicago: University of Chicago Press, 1902), 23.

3. Appropriations for the Cumberland Road:

1806	$30,000
1810	60,000
1811	50,000
1812	30,000
1813	140,000
1814	100,000

In American State Papers: Miscellaneous, 2:297.

4. Ibid. 2:296-298. The appropriation was $300,000.

5. Ibid. 2:301.

6. Richard C. Wade, The Urban Frontier: Pioneer Life in Early Pittsburgh, Cincinnati, Lexington, Louisville and St. Louis (Chicago: University of Chicago Press, 1959), 166-167.

7. See Catherine Blaskovich Smith, "The Terminus of the Cumberland Road on the Ohio," West Virginia History 14 (1953): 244-247.

8. Catherine Elizabeth Reiser, Pittsburgh's Commercial Development, 1800-1850 (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1951): 76-77.

9. Haites, Mak and Walton, Western River Transportation, 1.

10. The following material on keelboats and flatboats was obtained from brief histories of these two methods of transport in U.S. Congress, House, Report on the Internal Commerce of the United States (by William F. Switzler) 50th Cong., 1st sess., 1888. H. Ex. Doc. 6, Pt. 2, 183-187, (hereafter cited as Switzler); Louis C. Hunter, Steamboats on Western Rivers: An Economic and Technological History (Cambridge, MA: Harvard University Press, 1949), 52-60; and Haites, Mak and Walton, Western River Transportation, 13-23. Leland D. Baldwin, The Keelboat Age on Western Waters (Pittsburgh, PA: University of Pittsburgh Press, 1941) provides an extensive treatment of keelboats. Harry N. Scheiber "The Ohio-Mississippi Flatboat Trade: Some Reconsiderations" in David M. Ellis (ed.) The Frontier in American Development (Ithaca, NY: Cornell University Press, 1969) discusses the role of flatboats in Ohio River trade. 14. Hunter, Steamboats,53.

12. Switzler, 189, 222.

13. Hunter, Steamboats, 55.

14. Ibid. 55-56.

15. Switzler, 194.

16. The following material on steamboats was obtained from Switzler, 178-222; Hunter; and Haites, Mak and Walton, Western River Transportation. Although the Switzler material has been relied on heavily by later historians (including Hunter and Haites, Mak and Walton), it is undocumented. Hunter's lengthy work on the western steamboat is extensively documented. Haites, Mak and Walton's work extends Hunter's analysis in terms of competition and productivity, and refines his estimates of western steamboat tonnage.

17. George Rogers Taylor, The Transportation Revolution 1815-1860, vol. 4 of Economic History of the United States (New York: Holt, Rinehart and Winston, 1951), 63.

18. Hunter, Steamboats, 33.

19. Ibid. 106, 644. For example there were 198 arrivals at New Orleans in 1820 and 41 arrivals at Pittsburgh in 1823; by 1829 there were 756 arrivals at New Orleans and 114 at Pittsburgh. Ibid. 644.

20. Taylor, 65.

21. Information in this and the succeeding two paragraphs was obtained from Hunter's chapter "The Structural Evolution of the Western Steamboat," in Steamboats, 61-120.

22. Hunter, Steamboats, 72-75.

23. Ibid. 82.

24. Ibid. 83.

25. Information in this paragraph was obtained from Hunter's chapter "The Mechanical Development of the Western Steamboat," in Steamboats, 121-180.

26. Haites, Mak and Walton, Western River Transportation, 130. This estimate represents a refinement of Hunter's estimate of 187 boats of 29,481 tons. Haites, Mak and Walton explain their formulation in Appendix B of Western River Transportation.

27. Ibid. 32.

28. Ibid. 117 and Taylor, 136.

29. In the 1810s flour, wheat, corn, mess pork, lard and whiskey at Cincinnati had commanded consistently one-half to two-thirds of their value in Philadelphia, New Orleans and New York. By 1830 the Cincinnati value of flour, mess pork and whisky had increased to two-thirds to four-fifths of their seaport value, while wheat, corn and lard hovered at one-half. From Table 24, Haites, Mak and Walton, Western River Transportation, 116.

30. Ibid. 113-114, and Douglass C. North, The Economic Growth of the United States, 1790-1860 (New York: Norton, 1966), Chapter 11.

31. The population of the Transalleghany West in 1810 was approximately 1.2 million. In 1830 it was approximately 3.8 million. Computed from U.S. Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1957 (Washington, DC: GPO,

1960), "Population for States: 1790 to 1950," 13.

32. Freight wagon speed averaged about one and one-half to two miles per hour. The speed limit on the Erie Canal was four miles per hour although regular packets maintained approximately three miles per hour. Taylor, 138-142.

33. Ronald E. Shaw, Erie Water West: A History of the Erie Canal, 1792-1854 (Lexington, KY: University of Kentucky Press, 1966), 266-267.

34. Nathan Miller, The Enterprise of a Free People: Aspects of Economic Development in New York State during the Canal Period, 1792-1838 (Ithaca, NY: Cornell University Press, 1962), 115, 118.

35. Carter Goodrich, Government Promotion of American Canals and Railroads, 1800-1890 (New York: Columbia University Press, 1960), 76-79 and 87-95 includes brief histories of the Chesapeake and Ohio and James River and Kanawha improvements. Walter S. Sanderlin, The Great Canal Project: A History of the Chesapeake and Ohio Canal, Studies in Historical and Political Science, 64th series (Baltimore: Johns Hopkins University Press, 1946) deals at length with the former. Wayland Fuller Dunaway, History of the James River and Kanawha Company, Studies in History, Economics and Public Law, no. 236 (New York: Columbia University Press, 1922) covers the latter thoroughly.

36. Julius Rubin, Canal or Railroad? Imitation and Innovation in the Response to the Erie Canal in Philadelphia, Baltimore and Boston, Transactions of the American Philosophical Society, n.s. 51, pt. 7 (Philadelphia: American Philosophical Society, 1961), 15. Louis Hartz in Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948) also discusses the development of the Pennsylvania State Works.

37. Reiser, 80-89.

38. Pittsburgh Gazette, March 11, 1825 quoted in Reiser, 86-87.

39. Reiser, 96n. The reporting year ends November 30.

40. The description of tonnage on the Main Line in this and the following two paragraphs has been drawn from Reiser, Appendix 3: "A Compilation of the Tonnage carried over the Pennsylvania State System, 1835-1850," 211-224.

41. Switzler, 211.

42. Rubin, 64-69. Development of the B. and O. is also covered in volume 1 of Edward Hungerford, The Story of the Baltimore and Ohio Railroad, 1827-1927 (New York: G. P. Putnam's 1929); and John F. Stover, History of the Baltimore and Ohio Railroad (West Lafayette, IN: Purdue University Press, 1987).

43. Proceedings of Sundry Citizens of Baltimore convened for the Purpose of Devising the Most Efficient Means of Improving the Intercourse between that City and the Western States (Baltimore: William Woody, 1827), 3.

44. H. H. Walker Lewis. "The Great Case of the Canal v. the Railroad," Maryland Law Review 19 (1959) 9.

45. Appendix 3: "Statement of Trade, Revenue, Profits and Dividends of the B. and O. R.R. . . . ." in Milton Reizenstein, The Economic History of the Baltimore and Ohio Railroad, 1827-1853, Studies in Historical and Political Science, 5th series (Baltimore: Johns Hopkins University Press, 1897) 87.

46. Ibid.

47. Ibid.

48. Extended histories of these midwestern canals are: Harry N. Scheiber, Ohio Canal Era: A Case Study of Government and the Economy, 1820-1861 (Athens, OH: Ohio University Press, 1968) and Paul Fatout, Indiana Canals (West Lafayette, IN: Purdue University Press, 1972).

49. John G. Clark, The Grain Trade in the Old Northwest (Urbanna, IL: University of Illinois Press, 1966), 20-21.

50. Ibid. 21.

51. Ibid. 56. The lake ports distributed almost all of Ohio and Indiana's wheat and flour in the 1840s. Other important agricultural products such as corn, whiskey and livestock were usually sent South. See Clark, 20-27.

52. Shaw, 276.

53. Ibid. 298. Eastbound: wheat (bu.) 3,000,000; flour (barrels) 3,250,000; butter (lbs) 21,000,000; cheese (lbs) 42,000,000; bacon (lbs) 8,500,000; boards (ft) 300,000,000; staves (tons) 77,000.

54. Taylor, Table 2: "Average Freight Rates a Ton-Mile for 1816, 1853 and 1860", Appendix A. Rates of thirty dollars per ton-mile by turnpike in 1816 were reduced to $1.10 to $2.40 per ton-mile by canal. Taylor, Table 3: "Time Required for Freight Shipments from Cincinnati to New York City, 1815 to 1860 by Various Routes and Methods", Appendix A. Duration of shipment from Cincinnati to New York decreased from fifty-two days by river and wagon to eighteen days by canals.

55. North, 102-105; Taylor, 163-164.

56. Hunter, Steamboats, 82.

57. Boats were lengthened to create less resistance to the forward motion of the boat per volume of the hull. As boats became longer (in some instances the ratio of length to breadth approached 9:1) they became less rigid. In order to prevent sagging and "hogging" boat designers began to employ "hog chains" and tie rods--relying on wrought iron which was more efficient in tension than wood. During this period wrought iron also replaced cast iron for boilers and pipes. Hunter, Steamboats, 85-89, 94-100, 165-166.

58. Ibid. 142-160.

59. Ibid. 159-161.

60. Ibid. 144.

61. Ibid. 24.

62. Albert Gallatin, Report on the Subject of Public Roads and Canals (Washington, DC: Weightman by order of the U.S. Senate, 1808; facsimile reprint New York: Augustus M. Kelley, 1968), 36.

63. Martha Kreipke, "The Falls of the Ohio and the Development of the Ohio River Trade, 1810-1860," Filson Club Quarterly 54 (1980): 203.

64. Paul B. Trescott, "The Louisville and Portland Canal Company, 1825-1874," Mississippi Valley Historical Review 44 (1958): 692.

65. Kreipke, Table 5: "Tolls Collected at the Louisville and Portland Canal," 216-217.

66. Hunter, Steamboats, 193. Haites, Mak and Walton, Western River Transportation, 97, 136, state that steamboat life-expectancy increased from 5.7 years in the period before 1819 to 6.5 years during the decade 1830-1839.

67. Hunter, Steamboats, 203.

68. Memorial of the Chicago Convention in favor of the Improvement of Harbors and Rivers by the General Government, 30th Cong., 1st sess. (1848) Sen. Mis. Doc. 146. The convention is discussed at length in Mentor L. Williams, "The Background of the Chicago River and Harbor Convention, 1847," Mid-America 19 (1948): 219-232; and Mentor L. Williams, "The Chicago River and Harbor Convention, 1847," Mississippi Valley Historical Review 35 (1949): 607-626.

69. Hunter, Steamboats, 222.

70. Ibid. See also Louis C. Hunter, Seasonal Aspects of the Economic Life of the Ohio Valley before the Age of Big Business: Studies in the Economic History of the Ohio Valley, Smith College Studies in History, no. 19 (Northampton, MA: Smith College, 1933).

71. Hunter, Steamboats, 221.

72. Ibid. 204.

73. Haites, Mak and Walton, Western River Transportation, 144.

74. Ibid. 32. During the 1840s a backhaulage problem arose when shipments upriver represented about 47.5 per cent in weight and 57 percent in value of those coming downriver. Switzler, 221. Boatmen often offered lower upstream rates in order to secure freight. Any upstream freight was considered clear gain on operating costs. Haites, Mak and Walton, Western River Transportation, 28.

75. Hunter, "Seasonal Aspects," 8.

76. The "normal" rate of return on capital invested was ten percent. Haites, Mak and Walton, Western River Transportation, 35.

77. Ibid. 34.

78. Ibid. 35. Steamboat investment was convenient in the sense that it required small amounts of capital, entry in the market imposed few institutional restraints, construction time of vessels was short, and they could be moved easily between trades to take advantage of opportunities.

79. Computed from Table B-1 "Annual Construction (Gross and Net) and Tonnage of Steamboats in Operation on Western

Rivers, 1811-60", Appendix B, Ibid. 130-131.

80. Ibid. 131.

81. Canals and rivers also linked western manufacturers with eastern markets, but western manufacturing remained so small during the first half of the nineteenth century that I have assumed western manufactured products were consumed in local markets. Haites, Mak and Walton in Western River Transportation, 117 assessed the manufacturing output of the west at eighteen percent of the national total. Western population in 1850 was thirty-seven percent of the national total.

82. Commodities used for comparison were flour, wheat, corn, mess pork, lard and whiskey. Haites, Mak and Walton, Western River Transportation, 116.

83. Computed from Table 23: "Acres of Improved Land in the Trans-Appalachian West, 1810-1860," Ibid. 115.

84. Computed from Tables A-1 "Freight Shipments from the Trans-Appalachian West Received by the Southern Gateway, 1810-60," A-2 "Freight Shipments . . . by the Northern Gateway, 1810-60," and A-3 "Freight Shipments . . . by the Northeastern Gateway, 1835-60," Appendix A, Ibid. 124-128.

85. Taylor, 163.

86. Ibid. 164.

87. Ibid.

88. Computed from "[New Orleans] Receipts of Produce from the Interior from 1840 to 1857," Switzler, 216-218.

89. Taylor, 85.

90. For example the river distance from Pittsburgh to Cincinnati was 470 miles; the rail distance was 316 miles.

CHAPTER V
RIVALS ALONG THE RIVER

Bridging the Ohio River had been proposed in 1815 when a group of Steubenville, Ohio citizens, in an attempt to secure the terminus of the National Road, organized a bridge company.[1] But other westerners also recognized the potential of the road: "landholders, the owners of house lots, the tavern keepers and all the speculators generally of every town on the river, big and little" sought the prize.[2] Communities along the banks of the Ohio River realized that the road would "tend very much to accelerate the growth of the town" and would "doubtless render" the site chosen as "a place of considerable importance in a few years."[3]

The sentiments expressed in 1815 continued to motivate the citizens of the Upper Ohio Valley throughout the antebellum period. Developers in the first quarter of the nineteenth century expected turnpike traffic to converge at bridge sites. Later in the century promoters predicted that railroads would concentrate at these river crossings. Town boosters continued to lobby national and state governments to construct improvements providing local advantages and induced municipalities to subscribe to corporations building paths to their doors. The rewards to be realized included

not only better communication, but also new settlers, increased trade and prosperity. With so much at stake, competition between the towns along the Upper Ohio River was keen and prolonged. The rivalry between Pittsburgh and Wheeling began in the heyday of turnpikes and canals and climaxed forty years later in the era of steam packets, telegraphs and railroads. The municipal animosities engendered by their repeated challenges to each other's commercial security formed the background of the Wheeling Bridge case and reduced the abstract issues of the relative rights of land and water traffic to the concrete terms of a bridge built by Wheeling subscribers obstructing seven steamboats owned at Pittsburgh.

Over the decade between the passage of the act to survey the route of the National Road and the final decision in 1816 regarding its terminus at the Ohio River, two towns challenged Steubenville's bid. While Steubenville already had three ferry connections to the eastern bank of the Ohio River, the town labored under the disadvantage of being the most remote of the three from the population center of Ohio.[4] Wellsburg, Virginia also had a town ferry and in 1807 was designated an official port of entry.[5] Wheeling, Virginia had two ferries and was already the eastern terminus of the first wagon road into Ohio.[6] Wellsburg's promoters met Steubenville's challenge by proposing their own bridge across the Ohio River.[7] Wheeling's citizens, not to be outdone, also proposed a bridge.

In 1816 Noah Zane and ten other investors secured a charter from the Virginia General Assembly for the Wheeling and Belmont Bridge Company.[8] Zane was the proprietor of one of the ferries across the Ohio River at Wheeling. He and his fellow investors were authorized to replace the ferry with two bridges connecting the Virginia and Ohio shores by means of Zane's Island. The eastern bridge, connecting the Wheeling bank with the island, was to contain a forty-foot draw to allow sailing craft on the river to pass.

Wheeling had been a stop on the post road from the East to Ohio and Kentucky since 1794, and in 1797 had been designated the seat of Ohio County.[9] By 1811 the town contained 115 houses, eleven stores, two potteries, a nail factory, a rope walk, a boat yard, a market house, a courthouse and jail, a public library, a post office, and "numerous and tolerably well regulated" public inns.[10]

In 1816 Congress selected Wheeling as the western terminus of "the great road for all the western country."[11] Wheeling was soon "a thriving place" which "bid fair to rival Pittsburgh in the trade of the western country."[12] The new road which reached Wheeling in 1818 halved the cost of the carriage of goods, as well as the time enroute.[13] Eastern mail service which before the advent of the road consisted of a weekly horseback post, improved to daily stage delivery. By 1822 5,000 wagons from the East arrived at Wheeling merchant houses. An additional 500 wagons passed through Wheeling headed west, and wagons returning to

the East carried loads of western produce. Wheeling's 1810 population of little more than 900 grew to 1,567 by 1820.[14] Commission merchants, warehousemen, and manufacturers established profitable businesses, while hotel- and storekeepers boarded and provisioned emigrants.[15] Already noted as "an excellent place for embarkation," Wheeling soon had yards that produced flatboats, keelboats and several of the early steamboats for the Ohio River trade.[16]

The surge in commerce and immigrants raised Wheeling's businessmen's hopes of securing most of the trade of the New West. Certainly by 1818 Steubenville and Wellsburg ceased to be rivals. The only other contender for the title of "emporium of the West" was Pittsburgh. Although both Wheeling and Pittsburgh had been little more than trading posts in the late eighteenth century, the latter, built at the forks of the Monongahela and Alleghany rivers, already commanded trade on these tributaries of the Ohio River.

Approaching Pittsburgh from the north, the Alleghany River flowed through western New York and Pennsylvania and served as a natural highway for the shipment south of the agricultural products, lumber and salt of western New York and Pennsylvania. The Monongahela River, rising in western Virginia and flowing northward to Pittsburgh, provided an outlet for the iron, coal and agricultural products of northwestern Virginia and southwestern Pennsylvania.

The town which developed on "the point" where the rivers converged provided not only a market for upriver

produce, but also a place where immigrants could purchase outfits for settlement in the New West. Pittsburgh merchants also served as middlemen selling Philadelphia and Baltimore merchandise to merchants in towns further west. In the first decade of the nineteenth century Pittsburghers recognized that the high cost of Transappalachian shipment created a protective wall around western manufacturing. By 1810 the value of Pittsburgh manufactures had climbed to $1 million, and by 1815 to $2.6 million.[17] Among the first successful Pittsburgh manufactures were iron and glass, the former too heavy to be carried across the mountains economically and the latter too fragile. While Pittsburgh's population in 1800 was only 1,565, by the time Wheeling was selected as the terminus of National Road, Pittsburgh (with a population of over 8,000) was the largest town in the New West.[18]

But the growth and prosperity of the first decade and a half of the nineteenth century was short-lived in Pittsburgh. Warning signals appeared as early as 1816 when an influx of cheap British goods challenged local manufactures.[19] A canvass of 259 establishments in 1817 "found that the manufacture of Cottons, Woollens, Flint Glass and the finer articles of Iron, has lately suffered the most alarming depression."[20] By 1819 industrial employment had fallen from a high of 1,960 workers to 672, and the value of manufactured goods had dropped to $832,000.[21] For Pittsburgh the hard times continued for a

decade, during which the National Road opened to Wheeling and the Erie Canal progressed across New York. Faced with competition from the superior lines of travel being built to the north and south, Pittsburgh merchants and manufacturers clamored for the completion of the state turnpike system already under construction.[22]

The Pennsylvania Turnpike opened in 1820. This improved thoroughfare reduced the cost of shipping freight from Philadelphia to Pittsburgh from twelve and one-half cents to five cents per pound.[23] Better rates encouraged additional shipments, and by 1824 one commercial house in Philadelphia sent 200 wagons to Pittsburgh annually.[24] In 1825-26 3,460 wagons passed through turnpike tollgates carrying over 13.6 million pounds of freight.[25] While this record was a vast improvement over pre-turnpike receipts, it still did not equal Wheeling's estimated 17.5 million pounds of freight received in 1822.[26]

The National Road and the Pennsylvania Turnpike represented responses to western demands for better connections to the East. By the 1820s eastern merchants also sought better transportation to the interior as they tried to reverse the increasing western trade going downriver on steamboats to New Orleans. The Erie Canal was as much an effort of New York City merchants to expand their markets in the western valleys as an attempt of western New Yorkers to find an inexpensive route to markets on the seaboard. Similarly, construction of the Maryland

turnpikes which connected to the National Road at Cumberland enjoyed the support of Baltimore business interests, as did the Chesapeake and Ohio Canal. While New York businessmen reached the flour trade of the northwest, and Baltimore traders tapped the pork and tobacco traffic of Ohio, Philadelphia merchants seemed unaware that a race for western commerce was underway.[27]

Pennsylvanians had built their turnpike in response to diversion of traffic to the National Road, and the opening of the Erie Canal diverted even more traffic to the less-expensive canal to the north. Civic leaders in Philadelphia finally recognized that these improvements would serve the interests of New York and Baltimore at their expense. In the hope of maintaining their commercial and industrial positions as suppliers, and also of increasing their sector of the western market, Philadelphia commercial interests allied with merchants and manufacturers of Pittsburgh to lobby the state legislature for aid to internal improvements. The solution, an extensive, state-owned canal and portage railroad, was under construction by the late 1820s.[28]

The Main Line of the Pennsylvania State Works opened in 1834. Although an engineering feat for its time, the disadvantages of the Pennsylvania system were immediately apparent. Excessive lockage, delays at the portage railroad and the necessity of shifting cargo from one conveyance to another proved time-consuming and expensive. On the

positive side the Main Line reduced freight rates, trade increased, and toll receipts at Pittsburgh climbed to $48,807 in 1836-37.[29] But this figure represented only a fraction of the Erie Canal toll receipts of a decade before.[30] Pittsburgh merchants, manufacturers and editors, however, were jubilant: they foresaw Pittsburgh resuming its position as the entrepot of the New West with five avenues of trade radiating from "the point."[31]

By the late 1820s Pittsburgh had recovered from the depression. The federal census of 1830 reported the population of the city and environs at 22,000, and by 1836 industrial production was valued at almost six times the 1815 high.[32] Lyford's description of the city in his Western Address Directory of 1836 showed that iron manufacturing lead the industrial recovery.[33] One thousand workers at nine rolling mills converted iron blooms and pigs to bar, sheet, nails, wire and tools. Another one thousand hands at twenty iron foundries and machine shops made steam engines, boilers, ploughs and large and small castings. Together these industries accounted for $6.4 million in products. Other important Pittsburgh industries included glassmaking ($1.2 million), steamboat building ($960,000), cotton spinning ($500,000) and chemicals ($240,000). Lyford estimated that twenty-five steam engines produced industrial power, and that fuel consumption (for all purposes) amounted to 8.5 million bushels of coal, all supplied locally. Pittsburgh's industrial production, valued at $15.5 million,

represented about two-thirds of the city's "manufactures and mechanical products, and sales of all kinds" for 1836.[34]

Lyford also described Wheeling industry in 1836.[35] Wheeling's total annual industrial production amounted to more than $2 million. The largest sector, as at Pittsburgh, was iron manufacture. At Wheeling 230 workers at one rolling mill and three foundries produced sheet and bar iron, as well as steam engines, pipes, gears, stoves and nails valued at about $500,000. Two hundred glass workers accounted for $230,000 in crown, flint, window and bottle glass. Papermaking ($100,000) and sawmilling ($22,000) were also important industries and a large rope walk was under construction. Lyford estimated that Wheeling had 136 establishments employing 1300 hands and twenty-eight steam engines, and consuming 1.2 million bushels of local coal.

Even with the setback of the depression, Pittsburgh forged ahead of Wheeling. Wheeling's commercial expectations as the terminus of the National Road had been disappointed when maintenance on the road proved inadequate. Wheeling citizens complained to Congress in 1827 that preservation of the road required immediate repair.[36] The War Department engineer sent to inspect the road found it in a "shocking condition;" at least one bridge "would not stand a twelvemonth."[37] Under such circumstances freight had sought alternate routes.

Wheeling's claim to the title "head of navigation" on the Ohio River proved illusory when Pittsburgh began to

clear the major obstacles in the channel between the two cities. By 1830 shallow-draft steamboats had little trouble navigating the upper reaches of the river in normal stages of water.[38] By the mid-1830s the Main Line deprived Wheeling of more of its anticipated prosperity. For example, Ohio tobacco which had travelled to Baltimore markets via the National Road, now took the canal route from Pittsburgh to Philadelphia.[39]

Even with these blows to its ambitions, Wheeling transportation services expanded.[40] In 1836 the wharfmaster reported 1602 steamboat arrivals and departures and 228 keel and flatboat departures. Eleven steamboats had been built in the city that year and flatboats valued at $80,000 had been sold to boatmen transporting goods downriver. Eight stage lines maintained daily east-west service, while two daily and one tri-weekly stage headed north.

Trade at Wheeling also grew. Eighty-seven wholesale and retail stores sold $2 million in merchandise annually and purchased $1.4 million in flour, $245,000 in wool and $135,000 in pork products. Seven commission and forwarding houses sent 13.7 million pounds of goods eastward and 56.2 million pounds southward and westward each year. Cities downriver also received 1.5 million bushels of Wheeling coal.

Wheeling's population climbed to 9,000 in 1836, and the growth rate projected another 10,000 new citizens by the next federal census.[41] Recognizing the size and importance

of the community, the Virginia General Assembly granted Wheeling a city charter.[42] In addition to their newly-acquired status, citizens of Wheeling in 1836 could boast steam-powered waterworks, paved sidewalks, stone wharves, two city markets, three newspapers, two banks, a fire and marine insurance company and a circulating library of 1400 volumes.[43]

Wheeling's spurt of growth in the early 1830s also encouraged the proprietors of the Wheeling and Belmont Bridge Company to organize under their charter, which had languished since 1816.[44] Within a month the new managers of the company also solicited federal support, and by 1836 had raised sufficient private funds to contract for a bridge across the western channel of the Ohio River.[45] Their request for a federal subscription to aid in the construction of the bridges touched off a running debate with Pittsburghers.[46] While Wheeling promoters lobbied for the bridges, opponents in Pittsburgh countered each argument, and requested federal funds for river improvements along the Ohio, Monongahela and Alleghany rivers.

Between 1830 and 1849 citizens of Wheeling and Pittsburgh and their allies sent twenty-seven memorials to Congress relating to the controversy over the proposed eastern channel bridge.[47] Both sides resorted to a variety of tactics to escape the political thickets surrounding justification of federal expenditures for internal improvements.

In 1836 the Ohio legislature and 1,742 citizens of the state requested a federally funded bridge across the Ohio River by citing the Ohio Statehood Act's provision for roads "to the State of Ohio, and through the same."[48] By relying on this act the petitioners hoped to avoid the argument that the enumerated powers of the Constitution did not include authorization for funding internal improvements. Bridge proponents in Ohio reasoned that their statehood was an extension of the original compact between the states which had provided for government in the Northwest Territory. The Ohio petition contended that the federal government was honor-bound to construct a bridge across the Ohio River. Absence of the bridge was "a deep and intolerable grievance" which could not be remedied until Congress fulfilled its "sacred obligation" to connect the eastern and western sections of the Cumberland Road.[49]

Pittsburgh shipping interests also had recourse to the compact theory, but instead of invoking the provisions for government in the Northwest Ordinance, they relied on the clause making the Mississippi River and its tributaries common highways.[50] According to their argument the proposed bridge would obstruct the river, so the memorialists urged Congress to keep "removing the obstructions," not building them.[51]

Pittsburgh shippers and boat owners demanded river improvements above Wheeling to reduce the dangers of bars and snags and thereby enhance their claim to headship of the

Ohio. The upsurge of river tonnage brought about by the success of the steamboat on western waters increased their demands for improvements.[52] In addition to improvements made by Pittsburgh and by the state of Pennsylvania, Congress responded to these demands and others by appropriating funds for river and harbor improvements. The upper Ohio River and its tributaries received a generous share of this funding.[53]

In their memorials to Congress both bridge advocates and opponents also claimed that granting their wishes would increase the frequency and regularity of the U.S. mails. In 1830 the House Committee on Internal Improvements agreed with the bridge company that a bridge would expedite the mails and improve communications between the East and West.[54] The committee reported that Congress should aid in bridging every river which crossed the Cumberland Road to reduce interruption of mail service and communication. Since the Ohio River was the most important river, the committee agreed that it should be bridged first.[55]

A memorial of Pennsylvania citizens signed at Pittsburgh on March 15, 1832 rebutted the bridge company's claim by stating that a bridge would be a danger to navigation, especially at night, and would often detain steamboat traffic when the river was high. Detention of steamboats in turn would halt correspondence between East and West, for the Pennsylvanians declared that much of the United States mail was conveyed by steamboat.[56]

In 1838 Postmaster General Amos Kendall reported fifty-three irregularities in mail service at Wheeling between January and April.[57] In 1840 the House required the Postmaster General to inform it of the causes of mail detention and of the Postmaster's own opinion regarding the best remedy. Kendall replied on March 26, 1840: "I have the honor to add, that, in my opinion, the best means of remedying the evil would be a suitable bridge across the Ohio River."[58] In 1846 mail at Wheeling was still detained three times more often by problems at the river crossing than by other causes.[59]

Claiming to improve mail service appeared no more likely to win congressional approval for the bridge than invoking obligations to Ohio under the compact theory. Both approaches attempted to influence members of Congress on the relative importance of land and water traffic. Bridge proponents argued for land conveyance and the necessity to connect the two portions of the Cumberland Road already constructed with federal funds. Bridge opponents argued for the precedence of water conveyance and the common highway status of the Ohio River which had been enhanced by river and harbor funds. The dispute hinged on two related issues: whether the river was navigable above the proposed bridge site; and if it was, whether a bridge would obstruct traffic on the river. Pittsburgh and Wheeling interests also marshalled evidence on these points.[60]

Various citizens of Wheeling, including riverboat owners and pilots, described Wheeling as the effective head of steamboat navigation for much of the year. They presented evidence of the number of boats arriving from above and below to demonstrate that Wheeling had greater traffic downriver. They further argued that when the river was too low for steamboats to pass upriver beyond Wheeling, both freight and passengers were transshipped to and from Pittsburgh by stage.[61]

Pittsburgh supporters described that city's "remarkable position at the termination of the Pennsylvania canal, at the mouths of two important navigable rivers, and at the head of the Ohio."[62] Pittsburgh was shown to be the "true" head of navigation by the number of boats then tied up at the wharves compared to those at Wheeling wharves. Captains and pilots also stated that they could not lay up at Wheeling with safety and convenience.[63]

Memorialists in the two cities not only disagreed on the head of navigation, but also disagreed on what constituted an obstruction. Pittsburghers had stated in 1832 that "no elevation, and no plan of construction, could obviate entirely the objections to a bridge being thrown across this great river."[64] The Wheeling Board of Trade pointed out that the "ostensible ground" of obstruction could not be defended since "no opposition was ever raised to the proposed construction of a bridge at Louisville by private corporations, 500 miles lower" and that "there are

now several bridges with piers across the Allegheny and Monongahela rivers, at Pittsburgh, although they are navigable."[65]

Congress also considered building the bridge. In May, 1836 the House Committee on Roads and Canals reviewed materials submitted by the bridge company and Ohio regarding the eastern (main) channel of the Ohio River, and issued a favorable report. In the committee's opinion a suspension bridge at ninety feet above low water at Wheeling would meet the objection of obstruction of the river.[66]

In 1836 Congress also requested that the Secretary of War report on a proposed site, plan, and estimate of the cost for a bridge at Wheeling. The War Department report also proposed a wire suspension bridge, but by the date of publication the Panic of 1837 had intervened.[67] The bridge proposal did not reach the floor.

The War Department report on the Wheeling bridge had stated that the usual system adopted for bridges over large streams was a wood truss, but such spans could "hardly exceed three hundred feet with safety, and would therefore require a greater number of piers than the suspension bridge, which might be made with a span of one thousand feet."[68] On the assumption that the 1832 flood (highest then known) would equal any future flood, the engineers of the War Department declared "it will only be necessary to give a sufficient elevation above that stage to allow the largest boats to pass clear."[69] They ascertained that the

chimneys of the largest boats rose fifty feet above the water line and stated that they had "no hesitation in concluding that fifty feet above the highest flood will be as much as can ever be required."[70]

In 1844 the U.S. House and Senate received resolutions from the legislatures of Virginia, Ohio, Indiana and Illinois in support of, and from Pennsylvania in opposition to, a federally-funded bridge.[71] The House Committee on Roads and Canals reviewed the materials provided by both proponents and opponents of the bridge and reported that their investigation of the War Department report and their own correspondence with bridge engineer Charles Ellet, Jr. satisfied them that a bridge could be constructed which would not obstruct the river. The committee reported a bill with a provision that "the bridge shall be constructed as to admit, at all times, without obstruction or delay, of the safe and easy passage of steamboats of the largest dimensions."[72] But once again a bill to erect the bridge did not pass.[73]

Memorials to Congress regarding the bridge controversy relied on arguments related to federal concerns such as the mails, compacts between the states, obstructions of navigable waterways and federal funding of internal improvements. The memorials themselves and the arguments they presented would appear again in the Wheeling Bridge case. For example, Pennsylvania's attorneys would contend that bridging navigable waterways fell exclusively to

Congress as an exercise of its commerce power. Congressional failure to act on bridge petitions precluded construction of the bridge; therefore the Virginia charter was unconstitutional. Bridge company attorneys would argue that states had concurrent power to bridge navigable waterways. Since the Wheeling bridge exceeded the dimensions proposed by the Secretary of War as "sufficient . . . to allow the largest boats to pass," and in the absence of a federal law defining obstructions, the Wheeling bridge was legal.[74]

Attorneys for both sides would also resort to the compact theory to justify the positions of their clients. Attorneys for the bridge company cited the language of Ohio's admission to statehood to show that Congress had agreed to build a road "to . . . and through" the state, but for more than forty years had failed to honor part of its commitment.[75] Their clients had chosen to complete the road by bridging the Ohio River. By fulfilling this public need the bridge company deserved the appreciation of the nation, not the legal harassment of a jealous neighboring community. Counsel for Pennsylvania, on the other hand, invoked the Northwest Ordinance provision of common highway status for western waterways. According to these attorneys the bridge violated the compact and cut off trade to Wheeling's upriver competitors. As a nuisance in a common highway the bridge should be removed.

By the 1840s another aspect of the Wheeling bridge dispute--furnishing land transportation in the New West--had also become an issue in Virginia and Pennsylvania legislative halls. Both Wheeling and Pittsburgh commercial interests wanted to secure the terminus of an east-west railroad, and thereby expand their segments of land transportation. Their earlier reliance on roads and canals had proven disappointing, and they foresaw the new technology of the railroad overcoming problems associated with earlier forms of transportation and capturing the western trade.

The Baltimore and Ohio Railroad provided each city with its first opportunity to realize this goal.[76] In order to approach any terminus on the Ohio River, the Baltimore and Ohio Railroad had to secure the permission of either Pennsylvania or Virginia to construct and operate a rail road. In its first years the B. and O. anticipated a Wheeling terminus, but due to difficulties in overcoming the mountain ranges of western Virginia, the founders of the B. and O. assumed that their line (like the National Road) would have to cross the southwestern corner of Pennsylvania in order to reach Wheeling.[77]

A Virginia act of 1827 allowed the B. and O. to build a railroad so long as it "shall not strike the Ohio [River] at a point lower than the mouth of the little Kanawha."[78] Virginia legislators intended this restriction to protect the state's expenditures on the improvements along the James

and Kanawha rivers, and at the same time designate Wheeling, the only town of any significance north of the Little Kanawha River, as the B. and O.'s western terminus.[79] The Pennsylvania legislature also passed a law in 1828 allowing the B. and O. to build in their state, but required that if the railroad did not terminate its primary route in the vicinity of Pittsburgh, it must "construct a lateral rail road simultaneously, on the same principles and plans as the main rail road" to Pittsburgh.[80]

Construction of the B. and O. proceeded slowly. In 1834 the railroad reached Harper's Ferry, Virginia and the company began surveying the route through the mountains. In 1835 company engineers reported that the line would have to cut across southwestern Pennsylvania in order to reach Wheeling.[81] Recognizing that this would force the railroad to construct the branch line to Pittsburgh, and that the company could choose to construct only that line and save the cost of building to Wheeling, the northwestern Virginia community resorted to enticement. The City of Wheeling subscribed to 2500 shares of B. and O. stock ($250,000) and petitioned the state to subscribe also.[82] The petition entreated the legislature to secure "the great depot of the road, where all the western trade would be received; and all the merchandize of the east deposited."[83] Without the state subscription Wheeling would languish while "Pittsburgh, their natural rival, [would be] aggrandized, with wealth and prosperity."[84] The General Assembly responded with

authorization for state subscriptions totalling $1,360,520 and increased to $1 million Wheeling's subscription authorization.[85] The new legislation defined the western terminus of the road at Wheeling.

The B. and O.'s management also turned to the Pennsylvania legislature. But the favorable conditions toward the railroad which had prevailed earlier had disappeared with the completion of the Main Line, and the B. and O.'s managers found it "inexpedient to accept" the "new conditions in favor of Pennsylvania trade."[86]

In 1843 company engineers surveyed routes not passing through Pennsylvania which offered the "most practicable and advantageous connections with the trade . . . of the Western States in general."[87] Between 1843 and 1847 the Virginia General Assembly considered six bills providing for B. and O. rights-of-way between the Potomac and Ohio rivers. Representatives of the railroad and its allies urged passage of acts which provided access to the Ohio River as far south as the mouth of the Little Kanawha River.[88] The delegations from Wheeling, Ohio County and other counties along the northern route countered the B. and O. legislative petitions for southerly routes with proposals of their own. The protracted debates revolved around issues related to engineering and economic opportunity.

Engineering concerns centered on "practicable" routes. Ensuing arguments evaluated route feasibility in terms of distance, "graduation" (change in elevation) and bridging.[89]

While professionals compared criteria for engineering the road, property owners along the proposed corridors met in support of the various routes. They memorialized the legislature to support the B. and O.'s request for route choice south of Wheeling and their own requests for an independent railroad company to operate a line from Cumberland to some point south of Wheeling on the Ohio River. Backers of the state's James River and Kanawha improvement and investors in Virginia railroads near the B. and O.'s proposed southern corridors supported the Wheeling route.[90] In 1845 the legislature designated the right-of-way to Wheeling.[91]

In July, 1845 the B. and O.'s stockholders voted to refuse the terms of Virginia's 1845 law, and the company's managers again shifted their theater of operations to Pennsylvania.[92] During the fall of 1845 they participated in public meetings at Uniontown and Greensburg, Pennsylvania in support of B. and O. connections to Pittsburgh.[93] When the Pennsylvania legislature met in January, 1846 the first bill before the Senate related to a B. and O. terminus at Pittsburgh.[94] But Philadelphia commercial interests, threatened by the Baltimore and Ohio Railroad's attempt to terminate at Pittsburgh, drafted a proposal for their own railroad. Most of the 1846 legislative session in Pennsylvania was devoted to consideration of the competing railroad bills. At the conclusion of the session the B. and

O. faced almost certain defeat at the hands of Philadelphia.[95]

The terms of the Pennsylvania legislation forced the B. and O. to again request a Virginia charter. Their presentations before the Virginia General Assembly in 1847 reiterated the grounds of previous requests for a southern route and Wheeling's lobbyists again refuted each point. According to the promoters of the "second city," no other community in western Virginia could match Wheeling's amenities or financial support.[96] A terminus at Wheeling would control trade along the developing central Ohio rail lines and challenge Pittsburgh's potential western connections. Such a terminus would complement but not compete with the James River and Kanawha improvement 200 miles downstream.[97]

On the other hand, a grant to the B. and O. to develop a southern route would expose Wheeling, already "borne down by the rivalry of Pittsburg on the north," to the loss of "the remaining sources of her prosperity."[98] Appealing to state pride, Wheeling's supporters concluded that while Pennsylvania's "immense resources" fostered Pittsburgh's growth, their city and the counties along the Wheeling corridor "had for years contributed a larger amount of the State's income than the whole residue of the entire North West beside not a dollar of which had ever been returned in any public improvement."[99] Surely, they

declared, Wheeling was entitled to an "act of justice to save her from impending ruin."[100]

On March 6, 1847 the Virginia legislature again designated the Wheeling terminus, and after four years of debate, the B. and O. acquiesced.[101] After almost ten years of waiting Wheeling would have the railroad. Disappointments regarding National Road trade receded as visions of anticipated railroad commerce took their place.

In the meantime Pittsburgh commercial interests realized that reliance on the out-moded Main Line had caused some trade to move elsewhere, and with it, their primacy as a western market. Westward agricultural development also allowed more centrally located river cities greater command of western trade. East-west railroads, these Pittsburghers felt, would enhance their competitive position and help them reclaim lost commerce. They urged the city to subscribe to the Pennsylvania Railroad to secure the western terminus of the line and to subscribe to the Ohio and Pennsylvania Railroad to tap central Ohio. The city soon complied with both requests.[102]

Even with the diversion of some trade and a disastrous twenty-block fire in 1845, Pittsburgh's commerce remained strong.[103] By mid-century five banks, two private financial houses, five insurance companies and the Board of Trade provided services for city merchants and forwarding agents, while nine daily and fourteen weekly newspapers informed the Pittsburgh public of river and canal news and the

merchandise available at Pittsburgh stores. Eight commission and forwarding merchants sent goods along the Main Line and three rivers. On the rivers seven packets maintained a daily schedule to Cincinnati, while two boats ran tri-weekly trips to Wheeling and two small boats made daily runs to Brownsville. The general merchant of the first quarter of the nineteenth century had given place to the specialized house differentiated as either retail or wholesale. By 1850 Pittsburgh had forty-two wholesale grocers and liquor dealers, sixty-eight clothing and dry goods stores, fourteen medicine shops, twelve hardware stores, and at least 120 other stores dealing in books, guns, window sash, saddles and harness, furniture, snuff and music.

However, manufacturing played a larger role in Pittsburgh's economic development in the second quarter of the nineteenth century than commerce.[104] Industry flourished because of the availability of cheap fuel and raw materials, as well as the easy access to western markets which needed manufactured goods. Ironmaking predominated and gave the city its nicknames. Fahnestock's Pittsburgh Directory of the Year 1850 showed that 2,500 hands worked at the city's thirteen rolling mills.[105] Another 2,500 hands were employed at thirty foundries. Five hundred workers produced iron castings. Together these industries accounted for $6.3 million in iron products. Eleven hundred glassmakers produced various articles of glass valued at $1

million. Five large cotton factories employed 1,500 hands and produced yarns, sheeting and batting amounting to $1.5 million. Four thousand laborers mined 24 million bushels of coal in the Pittsburgh hills. According to Fahnestock Pittsburgh's manufacturing "and other business" amounted to $50 million annually.[106]

Pittsburgh's manufacturing growth helped to compensate for the disappointing trade of the Main Line. At Wheeling, similar disappointments over National Road trade had not been as readily counteracted, because Pittsburgh's forwarding merchants commanded better transportation facilities to the east and Pittsburgh's manufacturers offered better prices on their products.[107]

By mid-century Wheeling had a population of 13,161--a far cry from the projections of 1836, and only a small fraction of the population of the Pittsburgh area.[108] Memorials to the Virginia legislature in the early 1840s had attributed the decline in the anticipated growth rate not only to the general economic conditions following the panic of 1837, but also to the prolonged indecision over the B. and O. terminus.[109] By the late 1840s Wheeling had somewhat recovered the momentum of growth of the mid-1830s, and was in the process of building a flourishing manufacturing economy for a town its size.

Annually 3.7 million bushels of Wheeling coal were consumed locally, sold to riverboats and sent downriver. Iron production, however, accounted for greater employment

and sales. Five hundred employees rolled $568,000 in iron products, the most important of which were nails. "Nail City" foundries also made $250,000 worth of other iron and steel wares including steam engines, machinery, stoves, plows, anvils, springs and wire. At Wheeling 348 glassworkers accounted for $300,000 in flint and green glass. In textile production Wheeling's 152 cotton workers spun and wove $100,000 in yarn and fabric, and the largest silk manufacturer in the United States made $27,000 worth of satins, velvets, brocades, surges [sic], tassels and threads. The total manufacturing figures for Wheeling at mid-century were 2,500 employees producing $2.3 million in manufactured goods.[110]

Wheeling's port authority registered forty-three vessels of 4,500 aggregate tons, and the post office was one of the largest distribution points in the country.[111] Two daily newspapers carried the advertisements of Wheeling's 100 merchant houses and stores, while two banks, a savings institution and two insurance companies served local industry and commerce.[112]

While the city and the B. and O. settled their differences over routes from the East, the Wheeling Board of Trade worked to improve connections to Ohio and points west. In early 1847 the Board abandoned its quest for federal funds for a bridge across the Ohio River, and instead proposed the formation of a private stock company.[113] On March 19, a group of Wheeling businessmen received

authority from the legislature to purchase the old bridge company and its assets and to open books for a reorganized company.[114]

The new law permitted the Wheeling and Belmont Bridge Company to erect a wire suspension toll bridge provided that the bridge "shall not be so erected as to obstruct the navigation of the Ohio River in the usual manner, by such steamboats and other crafts as are now accustomed to navigate the same."[115] The act further stated that in the event the bridge was found to be an obstruction it was to be "treated as a public nuisance, and abated accordingly."[116] Other provisions allowed the city and its two banks to subscribe to the stock of the company. April was taken up informing the Wheeling public of the virtues of suspension bridges in general and the proposed Wheeling bridge in particular and in recording stock subscriptions at Wheeling and several nearby Ohio towns.[117] On May 12 the Northwestern Bank and the Merchants' and Mechanics Bank each subscribed $25,000 in the bridge company while the city a few days earlier had subscribed $22,500.[118] On May 13 the stockholders met to elect officers, and by June leading engineers had been invited to submit designs.[119]

Identification of the issues and parties in the Wheeling Bridge suit preceded design and construction of the bridge. The running dispute over building the bridge with federal funds raised constitutional and legal concerns, while the B. and O.'s efforts to secure convenient rights-

of-way in Virginia and Pennsylvania exacerbated the Pittsburgh-Wheeling commercial rivalry. While the nominal parties were the State of Pennsylvania and the Wheeling and Belmont Bridge Company, participants in the Wheeling Bridge case clearly recognized (and often referred to) the opponents as Pittsburgh and Wheeling.

Notes

1. Western Herald (Steubenville, OH), October 27, 1815, quoted in Catherine Blaskovich Smith, "The Terminus of the Cumberland Road on the Ohio," West Virginia History 14 (1953): 211.

2. Ibid.

3. Zadock Cramer, The Navigator: Containing Directions for Navigating the Monongahela, Alleghany, Ohio and Mississippi Rivers . . . . (Pittsburgh, PA: Cramer, 1811), 83-84.

4. Smith, 205.

5. Cramer, The Navigator (1811), 34-35.

6. Smith, 230-231.

7. Act of the Virginia General Assembly, passed February 17, 1816.

8. Act of the Virginia General Assembly, passed February 17, 1816 (the same day as the Wellsburg Bridge Act). The investors also secured a charter from the Ohio General Assembly on December 30, 1816. Belmont County, Ohio was adjacent to Wheeling.

9. Smith, 231.

10. Cramer, The Navigator (1811) 83.

11. John Woods, "Two Years Residence in the Settlement on the English Prairie in Illinois Country, United States [June 5, 1820 to July 3, 1821]" in Reuben Gold Thwaites Early Western Travels, 1748-1846 32 vols. (Cleveland, OH: Arthur H. Clark, 1904-1907) 10: 221.

12. Ibid.

13. The discussion of National Road trade in the early 1820s appears in the speech of T.M.T. McKennan (Whig) of Pennsylvania on May 3, 1832 regarding an appropriation for repairs to the National Road. Register of the Debates of Congress, 22d Cong., 1st sess., 2728-2729.

14. Henry Howe, Historical Collections of Virginia (Charleston, SC: Babcock and Co., 1845), 406.

15. Smith, 238-244.

16. Cramer, The Navigator (1811), 84; and Smith, 243.

17. Richard C. Wade, The Urban Frontier: Pioneer Life in Early Pittsburgh, Cincinnati, Lexington, Louisville and St. Louis (Chicago: University of Chicago Press, 1959), 46.

18. Wade, 43; Zadok Cramer, The Navigator: Containing Directions for Navigating the Monongahela, Alleghany, Ohio and Mississippi Rivers . . . . (Pittsburgh, PA: Cramer, Spear and Eichbaum, 1814), 54.

19. Wade, 163.

20. Quoted without citation in Wade, 167.

21. Niles' Register, February 22, 1817, quoted in Wade, 167.

22. Smith, 246.

23. Joseph Austin Durrenberger, Turnpikes: A Study of the Toll Road Movement in the Middle Atlantic States and Maryland (Valdosta, GA: the author, 1931), 34.

24. Reiser, 79.

25. Ibid. 78-79.

26. Register of the Debates of Congress, 22d Cong., 1st sess., 2728.

27. Reiser, 85.

28. The selection of the canal and portage railroad is described in detail in Julius Rubin, Canal or Railroad? Imitation and Innovation in the Response to the Erie Canal in Philadelphia, Baltimore and Boston, Transactions of the American Philosophical Society, n.s. 51, pt. 7 (Philadelphia: 1961), 15.

29. Reiser, 96n.

30. In 1825 the Erie Canal toll receipts were over $500,000. Nathan Miller, The Enterprise of a Free People: Aspects of Economic Development in New York State during the Canal Period, 1792-1838 (Ithaca, NY: Cornell University Press, 1962), 115.

31. The five avenues were the Ohio, Monongahela and Alleghany rivers, and the Pennsylvania Turnpike and Pennsylvania Main Line.

32. William Gilman Lyford, The Western Address Directory, Containing the Cards of Merchants, Manufacturers and Other Business Men (Baltimore, MD: Joseph Robinson, 1837), 109.

33. The description of Pittsburgh industry is from Lyford, 85-112.

34. Ibid. 112.

35. The description of Wheeling industry is from Lyford, 166-171.

36. "Resolutions adopted at a meeting of Inhabitants of Ohio County . . .in Relation to the Cumberland Road" in Cumberland Road and Domestic Manufactures, 19th Cong., 2d sess. (1827) H. Doc. 108.

37. Repair of the National Road from Cumberland to Wheeling, 22d Cong., 1st sess. (1832) H. Doc. 52; and Cumberland Road East of Ohio, 23rd Cong., 2d sess. (1835) H. Doc. 56, 11, 13. 38. Wade, 179-180.

39. F. Frank Crall, "A Half-Century of Rivalry between Pittsburgh and Wheeling," Western Pennsylvania Historical Magazine 13 (1930): 244.

40. Material in this paragraph and the following is from "General Estimate of the Population, Manufacturing Establishments, Wholesale and Retail Stores, . . . of the City of Wheeling, December, 1836," in petitions to the Virginia General Assembly, 1836-37 session, Virginia State Library, (hereafter cited as VSL).

41. Between 1835 and 1836 the community expanded so fast, and land was subdivided into lots so rapidly, that the Commissioner of Revenue for Ohio County petititoned the state legislature for a deputy immediately and a division of the county into two districts at the next session. See James Green, Commissioner of the Revenue for the County of Ohio, petition to the Virginia

General Assembly, filed December 7, 1836, VSL. Commissioner Green's petition described the city census and rate of growth for the fourteen-month period February, 1835 to April, 1836.

42. "An Act to incorporate the City of Wheeling, in Ohio County," passed March 11, 1836.

43. "General Estimate" and Lyford, 162-163.

44. Resolutions of the Board of Managers of the Wheeling and Belmont Bridge Company, February 26, 1830 in Cumberland Road East of the Ohio, 24th Cong., 1st sess. (1836) H. Rept. 672, 12-13.

45. Activities of the Board of Managers are discussed in Memorial of the Wheeling Bridge Company, 21st Cong., 1st sess. (1830) H. Rept. 349; and Wheeling and Belmont Bridge Company, 21st Cong., 1st sess.(1830) H. Rept. 399. See also Daniel Zane to Charles F. Mercer (Chairman, House Committee on Roads and Canals) January 30, 1836 contained in 24th Cong., 1st sess. (1836) H. Rept. 672.

46. James Morton Callahan, "The Pittsburgh-Wheeling Rivalry for Commercial Headship on the Ohio," Ohio Archaeological and Historical Publications 22 (1913): 40-54.

47. Pittsburgh and Wheeling citizens also launched efforts at their state legislatures. In addition to requesting a charter to establish a bridge company, its promoters also requested state funds. But politically Wheeling was isolated--a Whig outpost in the vast (and almost wholly Democratic) northwestern part of the state. Other Whigs who might have been potential allies had their own internal improvement interests, particularly the James River and Kanawha Company, which were rivals for the Ohio River trade. Wheeling was singularly unsuccessful in securing state aid for the bridge.

Pittsburgh interests were more successful at the state level. Pittsburgh merchants' requests for better communication with markets and suppliers in the East coincided with Philadelphia merchants' demands for better access to the West. The state turnpike and subsequent canal-portage railroad were the result of their efforts. This marriage of convenience only began to dissolve when the B. and O. Railroad appeared on the scene. Both Pennsylvania cities wanted to connect to the B. and O.: Pittsburgh to cut off Wheeling and tap the markets of Baltimore; Philadelphia to lure away Baltimore traffic and to tap the markets of the West, incidentally cutting off Pittsburgh on the assumption that the terminus on the Ohio would be at Wheeling or

below. Pittsburgh and the western members of the legislature could not gain sufficient support to pass an act enabling the B. and O. to enter Pennsylvania on their terms.

48. 24th Cong., 1st sess. (1836) H. Rept. 672, 3.

49. Ibid. 4-5.

50. They relied on the following quotation "the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever free." Article IV, Northwest Ordinance of 1787.

51. Remonstrance against Obstructing the Navigation of the Ohio River by the Erection of a Bridge at Wheeling. 22nd Cong., 1st sess. (1832) H. Doc. 188, 2.

52. Isaac Lippincott, "A History of River Improvement," Journal of Political Economy 22 (1914): 631.

53. Over the most active years of the river and harbor improvement acts (1824-1838) $9 million in federal funds were expended. Lippincott, 649 and Report in Relation to the Steamboat Navigation of the Monongahela River, from Pittsburgh to the Cumberland Road at Brownsville. 22nd Cong., 2nd sess. (1833) H. Doc. 126; and Memorial of the Directors of the Board of Trade of Pittsburgh that the Navigation of the Ohio River be improved . . . . 24th Cong., 1st sess. (1836) S. Doc. 351.

54. 21st Cong., 1st sess. (1830) H. Report. 349; and 21st Cong., 1st sess. (1830) H. Rept. 399.

55. 21st Cong., 1st sess. (1830) H. Rept. 399.

56. 22nd Cong., 1st sess. (1832) H. Doc. 188.

57. United States Mail, Washington--Wheeling, 25th Cong., 2nd sess. (1838) H. Doc. 348.

58. Mail--Wheeling, Virginia and Bridgeport, Ohio, 26th Cong., 1st sess. (1840) H. Doc. 156, 1.

59. Interruption of Mail at Wheeling, 29th Cong., 1st sess. (1846) H. Doc. 137.

60. Wheeling and Pittsburgh citizens presented arguments about the head of navigation for consideration in locating a marine hospital in one of their respective cities.

61. Virginia--Hospital on Western Waters, 25th Cong., 2nd sess. (1838) H. Doc. 162; and Documents Relating to a Marine Hospital in the City of Wheeling, Virginia. 25th Cong., 2nd sess. (1838) H. Rept. 309.

62. Pittsburgh--Hospitals [on] Western Waters, 25th Cong., 2d sess. (1838), H. Doc. 161, 1.

63. Petition of a Number of Citizens of Pittsburgh, 25th Cong., 2nd sess. (1838) S. Doc. 163, 3-4.

64. 22nd Cong., 1st sess. (1832) H. Doc. 188, 1.

65. Virginia Board of Trade, City of Wheeling--Bridge over the Ohio at that Place, 27th Cong., 3rd sess. (1843) H. Doc. 95, 3.

66. 24th Cong., 1st sess. (1836) H. Rept. 672; and Charles F. Mercer to Charles Ellet, Jr., 4 March 1836, Charles Ellet, Jr. Papers, Engineering Library, University of Michigan Library (hereafter cited as Ellet MSS). The report included Ellet's proposal for a wire suspension bridge with a 500 foot central span and two 100 foot secondary spans. Estimated costs totalled $207,000.

67. Bridge at Wheeling, Virginia, 25th Cong., 2d sess. (1838) H. Report. 993. Projected cost amounted to $410,000.

68. Ibid. 43.

69. Ibid. 41.

70. Ibid. The War Department design for the Wheeling bridge described a suspension bridge ninety-four feet above low water (fifty feet above the highest flood) supported on piers in the river 600 feet apart.

71. Resolution of the General Assembly of Pennsylvania adverse to the Erection of a Bridge across the Ohio River, 28th Cong., 1st sess. (1844) S. Doc. 57; Resolutions of the General Assembly of Ohio in favor of the Construction of a Bridge over the Ohio River at Wheeling, 28th Cong., 1st sess. (1844) S. Doc. 84; Bridge at Wheeling [Resolutions of the Legislature of Pennsylvania], 28th Cong., 1st sess. (1844) H. Doc. 67; Bridge at Wheeling [Resolutions of the Legislature of Ohio], 28th Cong., 1st sess. (1844) H. Doc. 104; and Bridge at Wheeling, 28th Cong., 1st sess. (1844) H. Rept. 79.

72. 28th Cong., 1st sess. (1844) H. Rept. 79.

73. H.R. 10, the bill which included the provision to erect

the bridge at Wheeling, also included the extension of the National Road. The appropriations requested in the bill included $100,000 to be spent on the National Road in Ohio, $150,000 to be spent on the road in Indiana and $150,000 to be spent on the road in Illinois. Representatives from the eastern states refused to consider such large expenditures and the bill died at the end of the session. Congressional Globe, 28th Cong., 1st sess., 692.

74. 25th Cong., 2d sess. (1838) H. Rept. 993, 41.

75. 2 U.S. Stat. 226.

76. The classic history of construction of the Baltimore and Ohio Railroad is Edward Hungerford, The Story of the Baltimore and Ohio Railroad, 1827-1927, 2 vol. (New York: G.P. Putnam's, 1929). A recent treatment of the same material is John F. Stover, History of the Baltimore and Ohio Railroad (West Lafayette, IN: Purdue University Press, 1987).

77. In 1827 the citizens who founded the B. and O. Railroad estimated the mileage and cost of the railroad "to Wheeling, or some other suitable point on the Ohio river." See Proceedings of Sundry Citizens of Baltimore Convened for the Purpose of Devising the Most Efficient Means of Improving the Intercourse between that City and the Western States (Baltimore, MD: William Woody, 1827), 33-37.

78. "An Act . . . to confirm a law, . . . entitled, "an Act to incorporate the Baltimore and Ohio Rail Road Company," passed March 8, 1827.

79. The state had assumed management of the James River Company in 1820 and assumed ownership of the company in 1828. See Wayland Fuller Dunaway, History of the James River and Kanawha Company, Studies in History, Economics and Public Law, no. 236 (New York: Columbia University Press, 1922), 67-92.

80. "An Act . . . to authorize the Baltimore and Ohio Railroad Company to construct a Railroad through Pennsylvania . . . ," passed February, 1828.

81. Further surveys by company engineers also indicated routes through Pennsylvania to Wheeling and Pittsburgh. Benjamin H. Latrobe, Report upon the Surveys for the Extension of the Baltimore and Ohio Rail Road from its Present Termination near Harper's Ferry on the Potomac, to Wheeling and Pittsburgh, on the Ohio River (Baltimore, MD: Lucas and Deaver, 1838).

82. "An Act to authorize . . .the town of Wheeling to subscribe for stock of the Baltimore and Ohio Rail Road Company," passed January 6, 1836; "Memorial of Citizens of Wheeling and the County of Ohio praying the General Assembly to subscribe for stock in the Baltimore and Ohio Rail Road Company," in petitions to the Virginia General Assembly, filed December 29, 1836, VSL.

83. "Memorial of the Citizens of Wheeling . . .," filed December 29, 1836.

84. Ibid.

85. "An Act to authorize a subscription on the part of the state, to the stock of the Baltimore and Ohio Rail Road Company," passed March 28, 1837; "An Act to authorize a further subscription on behalf of the State to the Stock of the Baltimore and Ohio Rail Company," passed April 2, 1838; and "An Act to amend the Act, entitled, 'an Act to incorporate the City of Wheeling, in Ohio County,'" passed March 9, 1838.

The 1837 state subscription ($302,100) represented forty percent of the cost of contruction from the western Pennsylvania line to Wheeling. The state subscription called for in the act of April 2, 1838 ($1,058,420) represented forty percent of the cost of construction from Harper's Ferry to Cumberland. Forty percent was the customary contribution of the state to private internal improvement corporations.

86. Baltimore and Ohio Railroad, Eighteenth Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad Company (Baltimore, MD: James Lucas printer, 1844), 29.

87. Ibid. 30.

88. The first bill resulted from the "Memorial of the Baltimore and Ohio Railroad Company praying further time to complete their improvement through the territory of Virginia," in petitions to the Virginia General Assembly, filed February 13, 1843, VSL. The bill was reported out of committee February 18, 1843 but the company found the amended terms of the bill so onerous that they did not pursue passage on the floor. Bill Number 114 of the 1844-45 legislative session provided for the terminus of railroad not lower than mouth of Little Kanawha River. This bill was amended on the floor of the House of Delegates and later became the act of February 19, 1845 requiring a terminus at Wheeling. In the sessions of 1845-46 and 1846-47 what appeared to be a charter for a new company to build a railroad from the Potomac River to the Ohio River was

actually a stratagem of B. and O. to secure a more favorable route. The act of February 28, 1846 supplemented the act of 1845 and allowed the B. and O. to reconsider its refusal of the earlier act. Bill No. 233 of the session of 1846-47 passed March 6, 1847 and again made Wheeling the terminus. If the B. and O. found a less expensive western route to Wheeling, the City could pay the difference and force the railroad to enter the City along their chosen route. See Journal of the House of Delegates of Virginia and Journal of the Senate of Virginia for 1843-44, 1844-45, 1845-46, 1846-47, Richmond, VA. See also Acts of the General Assembly of Virginia for the same years.

89. Following the B. and O. engineers' identification of five "practicable" routes terminating south of Wheeling, the City hired an engineer to identify feasible routes leading to Wheeling. B. and O., Eighteenth Annual Report (1844), 32-33; and Jonathan Knight to James S. Wheat, January 31, 1845 in James S. Wheat, A Brief Examination of Some of the Points in the Concluding Reply of the President of the Baltimore and Ohio Railroad Company (Richmond, VA: Shepherd and Colin, 1845), 13-20.

Not surprisingly Wheeling interests argued that the route proposed by their engineer was at least as practicable as the B. and O. choices. "The Memorial of the Mayor and Clerk of the City of Wheeling on behalf of the Council of said city . . . ." Journal of the House of Delgates, 1844-45, Richmond, VA. Doc. 13. See also Report and Documents Submitted by the Committee Appointed to Confer with the Authorities of the City of Wheeling Respecting the Late Law of Virginia Granting the Right of Way to the Baltimore and Ohio Railroad Company through that State (Baltimore, MD: 1847).

Conventions regarding route selection met at Fairmont, Virginia in 1845 and Weston, Virginia in 1846. Journal of the Proceedings of a Convention of the Citizens of North-Western Virginia Friendly to the Law of the Last Session of the Virginia Legislature relative to the Baltimore and Ohio Railroad (Wheeling, VA: James E. Wharton, 1845) and "Proceedings of the Railroad Convention, held at Weston . . . September 25, 1846," Journal of the House of Delegates, 1846-47, Richmond, VA. Doc. 13.

90. Baltimore and Ohio Railroad [in support of the Baltimore and Ohio Railroad Memorial before the Virginia General Assembly], N.p., [1844], 14-18.

91. "An Act to authorize the Baltimore and Ohio Railroad Company to complete their road through Virginia," passed February 19, 1845.

92. "Proceedings of a Meeting of the Stockholders of the Baltimore and Ohio Railroad Company, July 12, 1845," in Journal of the House of Delegates, 1845-46, Richmond, VA. Doc. 14, pt. 4.

93. George H. Burgess and Miles C. Kennedy, Centennial History of the Pennsylvania Railroad Company, 1846-1946 (Philadelphia: Pennsylvania Railroad Company, 1949), 36.

94. Burgess and Kennedy, 36-40.

95. The Pennsylvania legislature passed the Pennsylvania Railroad charter April 13, 1846 and the B. and O. charter April 21, 1846. Both were conditional. According to the terms of the two acts the B. and O. charter could only go into effect if the Pennsylvania Railroad failed to comply with its charter terms. Specifically the Pennsylvania Railroad had to obtain $3 million in stock subscriptions, have $1 million paid into the company treasury, and have 15 miles of road under contract by July 30, 1847. If the Pennsylvania Railroad failed to achieve these conditions, its charter was void. If the Pennsylvania Railroad met its charter terms the B. and O. charter was void. See also Burgess and Kennedy, 36-40 and Joseph S. Clark, Jr., "The Railroad Struggle for Pittsburgh: Forty-three Years of Philadelphia-Baltimore Rivalry, 1838-1871," Pennsylvania Magazine of History and Biography 48 (1924): 1-37.

96. Wheeling Board of Trade, Memorial of the Board of Trade of the City of Wheeling to the Legislature of Virginia, Renewing their Remonstrance against the Passage of any Law to Authorize the Construction of a Railroad . . ., N.p., 1846.

97. James S. Wheat, Argument on Behalf of the City of Wheeling before the Committee of Roads and Internal Navigation (Richmond, VA: P.D. Bernard, 1847).

98. "Memorial of the City of Wheeling Respectfully Remonstrating against the passage of any law in contravention of the Act, entitled 'An Act to authorize the Baltimore and Ohio Railroad Company to complete their Road through Virginia to the Ohio River . . .,'" Journal of the House of Delegates, 1845-46, Richmond, VA. Doc. 22, 10.

99. "Baltimore," The Law of Virginia of February 19, 1845 relating to the Baltimore and Ohio Railroad Company (N.p., [1845]), 13.

100. Ibid.

101. Louis McLane, President of Baltimore and Ohio Railroad to Governor William Smith, August 30, 1847 transmitting resolutions of the stockholders of the B. and O. Railroad dated August 25, 1847, petitions to the Virginia General Assembly, VSL.

102. Michael Fitzgibbon Holt, Forging a Majority: The Formation of the Republican Party in Pittsburgh, 1848-1860 (New Haven, CT: Yale University Press, 1969), 16.

103. Descriptions of Pittsburgh commerce at mid-century are contained in Reiser, 171-196 and Holt, 11-25. A contemporary view of Pittsburgh is: Woodward and Rowland's Pittsburgh Directory for 1852 (Pittsburgh, PA: W.S. Haven, 1852).

104. Holt, 17-21.

105. Samuel Fahnestock, Pittsburgh Directory for the Year 1850 (Pittsburgh, 1850) is quoted at length in Neville B. Craig, History of Pittsburgh with a Brief Notice of its Faculties of Communication (Pittsburgh, PA: John H. Mellor, 1851), 311.

106. Ibid.

107. Wheeling Board of Trade, "Memorial . . . Renewing their Remonstrance," and "Baltimore" The Law of Virginia of February 19, 1845 . . . . , 27-30.

108. Oliver I. Taylor, Directory of the City of Wheeling and Ohio County (Wheeling, VA: Daily Gazette, 1851), 7.

109. Wheat, Argument, 13.

110. The description of Wheeling at mid-century is taken, unless otherwise noted, from Taylor, Directory, 10-15.

111. Taylor, Directory, 23.

112. Ibid. 23-24; Delf Norona (ed.), West Virginia Imprints, 1790-1863: Checklist of Books, Newspapers, Periodicals and Broadsides (Moundsville, WV: West Virginia Library Association, 1958) 256-267; and J.B. Bowen, Wheeling Directory and Advertiser (Wheeling, VA: John M. M'Creary, 1839), 17.

113. Wheeling Times and Advertiser, March 30, 1847.

114. "Petition of Citizens of Ohio County", February 5, 1847; "Petition of Daniel Zane, Henry Moore and Daniel C. List", February 6, 1847; and Petition of Mary L.

Dorsey, February 13, 1847, in petitions to the Virginia General Assembly, VSL; and "An Act to revive and amend the act entitled 'an act incorporating a company to erect a tollbridge over the Ohio river at Wheeling,' passed February 17, 1816 and the act amendatory of said act, passed March 10, 1836," passed March 19, 1847 (hereafter cited as Wheeling and Belmont Bridge Company Act [1847]).

115. Wheeling and Belmont Bridge Company Act (1847).

116. Ibid.

117. Wheeling Times and Advertiser, April 1, 8, 10, 15, 19, and 29, 1847.

118. Wheeling Times and Advertiser, May 12, 13, and 14, 1847.

119. Wheeling Times and Advertiser, May 14, June 15, 1847.

CHAPTER VI
"A LITTLE NUISANCE"

The amended charter of the Wheeling and Belmont Bridge Company allowed the company to build a wire suspension bridge, on the condition that the river remain unobstructed for "such steamboats and other crafts as are now commonly accustomed to navigate the same when the river shall be as high as the highest floods."[1] In the company's earlier charters (1816, 1836) the legislature had declared that a forty-foot draw would meet the "unobstructed" condition. The new legislation, while recognizing that a forty-foot draw could not adequately accommodate the steamboats running on the river, failed to define what constituted an obstruction.

The board of managers of the newly organized company immediately set about deciding how to bridge the Ohio River within both their budget and their mandate. In the absence of either state or federal definitions of obstruction, the managers relied on the opinions of the engineers who had proposed bridges at Wheeling.[2] The suspension bridge built by the company between 1847 and 1849 exceeded the dimensions of all earlier proposals for the site, but failed to satisfy Pittsburgh steamboat interests, a few of whose

boats would be delayed for brief periods on high stages of water.

The Wheeling Bridge suit anticipated the detention of these steamboats and raised the issue of whether the Wheeling bridge violated the terms of its charter. The bridge company claimed that the complainant's allegations were based on "extraordinary" floods and the "extravagant" chimneys of the boats of one packet line.[3] According to the company their bridge did not block traffic "commonly accustomed to navigate" the river and thus met the terms of the Virginia charter. The justice who heard Pennsylvania's request for an injunction to halt construction of the bridge deliberated the relative versus absolute nature of obstruction. His decision turned on the same mutally dependent variables--site, height, span and cost--which the bridge company's board of managers and engineer considered in selecting the Wheeling suspension bridge design.

Earlier designs submitted to Congress helped the managers evaluate the proposals they solicited in 1847. Ten years earlier Congress had asked the Secretary of War to assess appropriate sites to connect by a bridge the eastern and western portions of the National Road.[4] Lieutenant John Sanders of the Corps of Engineers was dispatched to Wheeling to prepare a report. He considered the ferryways above and below Zane's Island and the National Road (Zane's) Ferry site. The first two locations offered direct connection of the east and west banks of the Ohio River. But they also

presented greater spans, and were out of the direct line of travel along the National Road. Sanders chose the Zane's Ferry site because it was the shortest route, provided an elevated position for the eastern bridge abutment, and required the shortest span of the main river channel.[5] Retaining the National Road right-of-way also kept the proposed bridge in line with the western channel bridge (then under construction) and did not require construction of new sections of road or the alteration of the city street pattern.[6] Successive engineers agreed with Sanders' site selection.

The eastern bank of Sanders' site was ninety to one hundred feet above the bed of the river. This natural elevation provided clearance without the necessity of massive piers. The western abutment, however, would be located on Zane's Island, which was only thirty-six feet above the water. In the design prepared by Sanders and Lt. George Dutton in 1838 the western approach rose from the grade of the island on a series of stone arches to reach the western abutment at 94-1/2 feet.[7] Such a design called for extensive stonework. By comparison, Charles Ellet, Jr.'s hypothetical design of 1836 proposed a bridge at 90 feet elevation and a symmetrical arrangement of large arches requiring about one-third less masonry work.[8]

The government design called for a wire suspension span of 600 feet while Ellet proposed a similar 500 foot suspension span. Each proposal discussed in detail the

feasibility of the wire suspension system, and traced the history of suspension bridges in Europe.[9] The designers explained that other bridging technologies (masonry arch and wood and iron trusses) were totally inadequate for spanning more than 300 feet at a reasonable cost.[10] Ellet pointed out that masonry arch systems had only been justified in the past "when the labor of thousands and the wealth of a nation could be commanded to supply the void created by the absence of science and skill."[11]

As Ellet appreciated, cost was the final consideration. Here the two proposals differed radically. Sanders and Dutton had included piers and abutments totalling 48,972 perches of stonework at a cost of more than $280,000. They estimated the total cost of their bridge at $410,000.[12] Ellet's cost estimate included 29,800 cubic yards of masonry at $178,800 and a total cost of $207,700.[13]

In 1843, as a result of his experience constructing the Fairmont Suspension Bridge at Philadelphia and of his two visits to Wheeling, Ellet proposed a "more advantageous arrangement."[14] He now recommended clearing the whole river in one span at eighty-six feet above low water. This revised design would cost only $130,000 to build.[15]

Dutton and Sanders, working under federal aegis (and not concerned with the terms of the Virginia legislation), had decided that a 200 foot span would "afford ample room for the free passage of boats or rafts," and a 500 or 600 foot span "would not offer the slightest obstruction."[16]

They determined the appropriate height of their bridge design by reasoning that since the height of chimneys of the largest steamboats on the Ohio River was about fifty feet, "[f]ifty feet can then be safely taken as the proper elevation of the bridge above the highest known rise [forty-four feet], (which is of rare occurrence,) and a stage at which the dangers of the navigation would prevent the river from being navigated to any extent by steamboats."[17]

Ellet on the other hand did not believe that "the whole land travel along this great thoroughfare [the National Road] should be compelled to ascend to an inconvenient height, because one or two steamboats, with excessively long pipes, might be compelled to lose a few hours once in a quarter of a century."[18] Ellet reasoned that he could fairly "make a division of these necessary inconveniences; and . . . provide for a pipe of 50 feet, and a flood of 35 feet."[19] He chose to span the entire river at eighty-six feet.

The House of Representatives' Committee on Roads and Canals to whom Ellet had sent his proposal concurred, and reported a bill that such a bridge be constructed at federal expense. The committee also indicated that a bridge on Ellet's plan would not violate the navigable waters provision of the Northwest Ordinance, since Pennsylvania had authorized similar bridges over "these great declared highways; and, as yet, the committee have heard no

complaints from that State that these bridges . . . have obstructed the navigation."[20]

The board of managers of the bridge company, having referred to the earlier designs for suspension bridges at Wheeling, invited two prominent bridge engineers to submit proposals for the Wheeling and Belmont Bridge. Submissions were to include "an elevation of 100 feet above low water mark at the eastern tower . . .descend[ing] . . . at the grade of 3 degrees or 5-34/100 feet per 100."[21] Proposed spans were to provide "as large a space between the eastern abutment and piers as is consistent with our means, in order to interfere as little as possible with the free navigation of the river."[22]

John Augustus Roebling and Charles Ellet, Jr. submitted designs for the Wheeling suspension bridge. Roebling had already built the suspension aqueduct and the Smithfield Street Bridge in Pittsburgh.[23] Ellet's Fairmont Bridge at Philadelphia was the longest suspension span in the United States.[24] Ellet had also offered designs for suspension bridges over the Potomac at Washington and over the Mississippi at St. Louis.[25] Roebling had prepared a proposal for a suspension bridge at Cincinnati.[26] In the summer of 1847 both engineers also competed for the commission on a suspension railroad bridge at Niagara, and Ellet had been asked for information regarding a similar bridge at Middletown, Connecticut.[27]

Roebling and Ellet visited Wheeling in June and July, 1847 to study the site and present their proposals.[28] Roebling's design provided a maximum vertical clearance of 100 feet at the eastern abutment. From there the deck descended at an angle of 2-3/4 degrees (4.7 feet per hundred) reaching the western abutment at an elevation of fifty-nine feet. In the horizontal dimension Roebling proposed a masonry pier in the river, 531 feet west of the eastern abutment.[29]

Ellet's proposal called for an elevation of the underside of the bridge flooring at ninety feet above the low water surface at a point 250 feet west of the eastern abutment. From there the deck would descend at a rate of four feet per hundred (2-1/3 degrees) making the elevation of the roadway at the western abutment sixty-two feet. Ellet's proposal provided a clear span of over one thousand feet.[30]

Both Roebling and Ellet presented their designs as substantially complying with the requirement to maintain free navigation. Each engineer stressed the merit of his design, and dismissed its shortcomings as unimportant. Since the design strength of one was the weakness of the other, this strategy also refuted the opponent's design criteria. In their presentations Roebling discussed at length the importance of elevation to the free navigation of the Ohio River; Ellet emphasized the importance of clear span.

In his explanation of his design decisions Roebling stated that he foresaw that "great and continued efforts will be made, to have 'this first bridge over the Ohio' declared a public nuisance, as soon as it is erected."[31] He warned that "great caution should be exercised in its planning, so as to avoid disasterous litigations for the future."[32] He then declared that his proposal of a 531 foot span "will leave the channel, which alone can be navigated in low water, altogether free."[33]

According to Roebling, the claim of obstruction could "only apply to the elevation of the floor, considered necessary for the free passage of high steamers, such as now usually navigate the river, and in the highest floods known heretofore."[34] The engineer then compared the absolute language of the charter with the "practical view."[35] Practically speaking, the river was no more navigable at its highest stage than at its lowest stage, because "no landing can be effected, . . . no freight can be taken in nor discharged; business is therefore interrupted; and the navigation may be considered as suspended for the time."[36] Roebling reasoned "no stage of water over 35 feet need be considered in the case of the Wheeling bridge."[37]

By applying the dimensions of the Clipper #2, (one of the largest boats in service on the upper Ohio River with chimneys sixty-four feet above the water line), Roebling stated he had "amply provide[d] for all the other craft, now

navigating the upper Ohio."[38] His design spanned the river at a maximum elevation of 100 feet.

He acknowledged that "should the bridge ever interfere with the passage of the steamers, and the case be tested before the law, the issue would turn upon this practical question, whether an occasional necessity of lowering the chimneys, could be called an obstruction."[39] He also observed that boats using the Louisville and Portland Canal had to lower their chimneys to pass under the canal bridge, "but the height of the arch, which could easily be removed altogether, has never been complained of."[40] Roebling speculated that chimneys had "attained their maximum height on the western rivers, and that future changes will be downward," but he also admitted that continued improvements of the channel would allow larger boats to ascend the river.[41]

Since the charter for the Wheeling and Belmont Bridge only referred to boats "now" running, he refused to anticipate changes in steamboat technology in his design. Roebling concluded that if the Wheeling bridge was ever declared an obstruction, "the engineer's specifications may be considered an important document in the case, . . . [so] I have dwelt upon the subject at some length, and have endeavored to view this question in its different bearings."[42]

Roebling's design presentation was not sufficient to convince the Wheeling and Belmont Bridge board of managers

of its efficacy. On July 14, 1847 they awarded the commission to Ellet with only one dissenting vote.[43] The successful engineer spent August writing specifications for the project and advertising for bids, and in September the bridge company awarded construction contracts.[44]

On October 10, 1847 the City Council of Wheeling asked Ellet to prepare a report on the bridge.[45] Ellet's response, dated October 26, 1847, presented his design to the public.[46] He began his report with an explanation of the ability of a strand of wire to support a given load. "[B]y thus multiplying the strands of wire, [the engineer could] ultimately obtain strength enough to support the . . . bridge."[47] If the engineer could find or build points high enough to suspend the bridge cables, then he could "build a bridge at any point where span is less than three-quarters of a mile."[48] Therefore Ellet would accept "no excuse for placing a pier in a navigable channel in any position where points of support for a single arch may be obtained."[49] The Wheeling bridge site offered locations for towers of reasonable cost. He had chosen to design a single span because it had "the advantage of leaving the navigation of the great river unimpeded--avoiding all the consequences due to an obstruction of the channel."[50]

Ellet also justified the elevation of his bridge design. "The flooring of the bridge will be high enough to permit a steam-boat, with a pipe of 50 feet above the water, to pass at the top" of the flood of 1832.[51] Since that

flood had been six feet higher than any other, "it is impossible that the navigation can suffer any appreciable interruption, in any stage of water, from the construction of this work."[52]

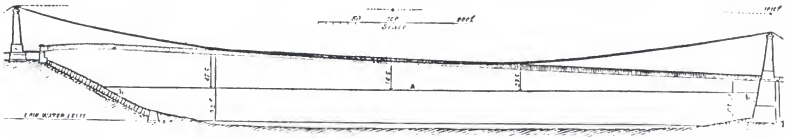
Construction proceeded according to Ellet's plan. But Ellet had reckoned without the poor weather conditions and labor supply of Wheeling in 1847 and 1848. Rains during the fall raised the water level in the channel to thirty-nine feet, and the rains continued intermittently during the winter.[53] Foundation work halted until the water receded, but then "a steamboat came along and threw so much water into the pit" that work had to stop again until the pit could be pumped out.[54] Spring rains in 1848 turned the quarry roads to mud, and stone could not be delivered. Finally in the summer of 1848 the weather began to cooperate.

Poorly disciplined labor also plagued early construction efforts. Ellet described the hands working at the bridge site as "the scouring of the west", "not one [of whom] . . . has any sort of appreciation of time."[55] He lamented "a year's work for me depends on two weeks [sic] good weather," but even with the best weather the labor supply was so inadequate that "it [the bridge] would not be done in 2,000 years with such people."[56] Ellet was forced to ask friends in Philadelphia and Baltimore to secure good laborers and send them to Wheeling to replace the "rowdies" and "rascals."[57] By May, 1848 qualified stone

masons and cutters were working on the abutments and wing walls, and skilled iron workers were busy splicing wire on Zane's Island.[58]

Problems also beset the supply of stone and iron for the bridge. Stone was quarried at nearby upriver sites, while iron supplies came from Easton and Pittsburgh, Pennsylvania. To facilitate delivery of these materials, the bridge company hired the Island Packet to tow barges. But in December 1847 the Island Packet burst one of its boilers, killing two workers and injuring several more, and postponed the delivery of bridge materials until the boat could be repaired.[59] Early in the project one of the stone contractors defaulted, three months later a stone supplier also defaulted, and within a month a large delivery of iron of inferior quality had to be returned to the manufacturer.[60] Lumber for the deck and railing was the only major component which arrived on schedule and met specifications.[61] Even with these problems, by early 1849 most of the bridge materials were at the site, the iron had been drawn into wire and assembled as cables, 400 suspenders had been fabricated and the stonework was almost complete.[62] As the bridge assumed its final form, interest in it began to quicken.[63]

With their project nearing completion, the bridge company again petitioned the Virginia General Assembly to amend their charter.[64] According to their January 1, 1849 memorial, the board of managers stated that "after an



EXPLANATION.

The above diagram taken from the Engineer's report, exhibits, on a reduced scale, the elevation of the Wheeling Bridge. The line A represents the high water mark of 1832. A line drawn from the points bb will represent the height of water at usual Spring floods, 35 feet. The summit of the eastern tower is 21 feet above the western tower.—*Engineer's Report*, 9. The average height of St. Louis steamboats is 65 feet. The packets 80 feet high, 60 feet beam.

The height of river at Wheeling, above low water level, as sworn to by the Wharf Master, is thus stated:

1838. May, 31 feet.	1844. March, 29 a 30 feet.
1839. May 29 a 30 feet.	1845. March, 35 feet.
1840. February, 28 feet.	1846. March, 30 feet.
1841. March, 31 feet.	1847. Nov. and Dec., 26 a 28 feet.
1842. March, 29 a 30 feet.	1848. 30 feet.
1843. March, 29 a 30 feet.	1849. May, 31 feet.

Figure 4. Wheeling and Belmont Wire Suspension Bridge (1849)
From: Robert C. Grier, The State of Pennsylvania v. the Wheeling and Belmont Bridge Company . . .

anxious enquiry and investigation" they had fixed the maximum height of the bridge at ninety feet above low water.[65] This height would "practically leave the navigation of the Ohio free and unobstructed for the craft usually navigating the same."[66] But because the fourteenth section of the charter (relating to obstruction) was "some what [sic] vague and indefinite" the company requested the legislature to amend the charter "to sanction the height fixed by the Board of Managers."[67]

The managers explained that they had settled on the height of ninety feet with a sloping bridge deck as the best means to accommodate both bridge and boat traffic. On flood stages as high as that of 1832 the navigation would be "practically suspended."[68] Their bridge would be forty-five feet higher than the river level in 1832, "so that by having joints and hinges on the chimneys steam boats could have passed under the Bridge even on that flood without difficulty or delay."[69]

According to the memorialists their bridge would provide sixty feet in the clear on a more realistic flood stage of thirty feet, "a space amply sufficient, for the great majority of craft navigating the upper Ohio to pass without the necessity of lowering their chimnies."[70] Since high rises were rare and of short duration, even the ten or twelve largest boats would probably lower their chimneys only twice per year. When the existing charter had been enacted the largest boats on the river could have passed

under the bridge on a twenty-foot rise without lowering their chimneys.

Since passage of their charter "a few boats" had been built with taller chimneys.[71] Therefore, at the present time on stages of twenty feet, four to six boats would have to lower their chimneys three or four times per year to pass under the bridge. Still, the company did not believe this obstructed navigation because joints and hinges were routinely used on the boats on the lower Ohio River in order to pass through the Louisville and Portland Canal. "[B]ut a small additional expense is required to provide them [joints and hinges] and their use causes but little trouble and no delay or stoppage of the boat."[72]

Having presented evidence to show that their bridge would "practically" leave the river unobstructed, the petitioners concluded with two other reasons to amend their charter. In addition to the low bridge over the Louisville and Portland Canal which necessitated the use of hinges and joints, the memorialists pointed to the low clearance of the bridges across the Alleghany and Monongahela rivers at Pittsburgh. They also reminded the legislature that their bridge would connect the two portions of the National Road, providing "certainty and regularity in the transportation of the mails."[73] Their bridge was "a work of even national importance" and the "accommodation of an interest so great would . . . outweigh any objection to the height of the

bridge even if a serious inconvenience were ocassioned to the navigation of the river."[74]

In early 1849 the Virginia legislature also considered a petition from sixty-three Wheeling citizens requesting authorization for the city council to make subscriptions to railroad companies "starting from or terminating at this city or a point on the west bank of the Ohio river opposite the same."[75] According to the petitioners the "commercial and manufacturing prosperity of our city may be greatly enhanced by a judicious application of its resources to the construction of railroads."[76] The City of Pittsburgh was already attempting to secure the trade of the "extensive and very productive country west of the Ohio river" which the petitioners felt "may with greater facility be made accessary [sic] to the growth of this Virginia city."[77] Therefore, the petitioners believed "the active and powerful rivalry of other cities may render this [authority to subscribe] indispensable."[78] The strategy which had successfully brought the B. and O. Railroad to Wheeling was to be used to lure other railroads there.

The two petitions show the Wheeling and Belmont Bridge Company attempting to protect its investment by specific authorization of bridge height, and Wheeling citizens trying to spend city funds to build a railroad hub. But the 1848-1849 legislative session did not prove propitious for Wheeling proposals. The 1847-1848 legislature had handsomely provided five new corporations for Wheeling, and

guaranteed the city's bonds for the B. and O. Railroad subscription.[79] But in 1848-1849 only one Wheeling request was successful, while the proposals for the bridge amendment and for the authority to subscribe to other railroads died in committee.[80]

Within months the absence of statutory authority for the chosen bridge configuration raised the specter of legal proceedings to halt construction. Pittsburgh-area newspapers had periodically reported on the bridge, and contended that when completed it would obstruct navigation. The issue primarily concerned steamboat interests, but Pittsburgh railroad interests also opposed the Wheeling bridge. To them a bridge at Wheeling offered an opportunity for eastern and western railroads to unite south of their own city, thereby diverting much of the trade of the Ohio Valley.

Ellet's Report on the Wheeling and Belmont Suspension Bridge (1847) had shown that Wheeling was the best connection for east-west railroads. Quoting reports by both the B. and O. and Central Ohio railroads, Ellet noted the advantages they attributed to the Wheeling route: the easiest grades, the most productive countryside, the flourishing City of Wheeling and the bridge; and declared that railroads would be placed where they were most supported.[81] "The vast trade which will be brought by this great line [Baltimore and Ohio Railroad] and its tributaries, will cross over the Suspension Bridge and

probably at no distant day, require that [the] bridge be modified so as to pass the cars forward without any transhipment [sic] of persons or property."[82] In the meantime with the addition of a track the bridge could accommodate horse-drawn trains of cars.[83] Coupling Ellet's projections with the recent memorial for authority to subscribe to railroads, Wheeling and its bridge presented as much of a threat to Pittsburgh railroad interests as to its steamboat interests.[84]

By July, 1849 stone masons had almost finished the bridge towers. With only the suspension of cables and deck remaining, the bridge would in all probability be completed. But on June 27 those Pittsburgh interests opposing the bridge held their first public meeting.[85] Solomon Roberts, the engineer for the Pennsylvania and Ohio Railroad, addressed the assembled group. Roberts first demonstrated that the bridge would be a decided obstruction to navigation, and "then proceeded to show the superiority of the Pennsylvania and Ohio Railroad."[86] Roberts' presentation and others excited steamboat interests to action. Within a few weeks they had taken their cause to Harrisburg, and on July 25 Cornelius Darragh, Attorney General of Pennsylvania, issued notice that the state would bring suit against the bridge company.[87] On the 28th of the month Edwin M. Stanton, a Pittsburgh attorney associated in the case, served notice of the pending suit on the Wheeling and Belmont Bridge Company.[88]

Notice of the suit surprised both the bridge company and the justice who was to hear it. James Baker, an officer of the bridge company then in Philadelphia, had been asked by the board of managers to seek counsel and find out about the suit.[89] While the board in Wheeling prepared materials for their defense, Baker had secured the services of John Cadwalader, a noted Philadelphia attorney, and together they had gone to the clerk of the federal court. Learning that the clerk had no record of the suit, Cadwalader and Baker had next called on Justice Robert C. Grier. Grier had only received "a telegraphic dispatch from Mr. Stanton asking the judge if he would be in Phila on the 15th inst to hear an application for an injunction against the WBBC [Wheeling and Belmont Bridge Company]."[90] According to Baker "[t]he judge expressed surprise that such a case should be brought before him and seemed to treat it as marvellous [sic]."[91]

Justice Grier heard the matter on August 16, 1849.[92] Pennsylvania's application for a writ of injunction to restrain the Wheeling and Belmont Bridge Company claimed that construction of a suspension bridge would "obstruct the free navigation of the Ohio river as a common highway, to the injury of the citizens of the State of Pennsylvania."[93] Pennsylvania had filed an original bill and an amendment, and at the hearing filed a supplemental bill and affidavits.[94] The bridge company filed an answer to the original bill at the time of the hearing, but had received no notice of the amendment and was thus unprepared

on its points.[95] The bridge company also filed affidavits.[96] Both sides presented oral arguments.[97]

Justice Grier heard arguments on three issues. The first issue was a procedural question on the nature of the suit. The second issue related to the jurisdiction of the Supreme Court as determined by the nature of the parties. The third issue was the factual question of whether the bridge obstructed a common highway, and whether obstruction was a relative or absolute condition.

The case was brought on the equity side of the Court as a bill to abate a public nuisance by injunction.[98] Pennsylvania's original bill alleged that the bridge was a public nuisance according to common law, the Virginia statute creating the bridge company and the Northwest Ordinance.[99] The defendants answered that the case was properly a commerce clause matter under the regulation of Congress, and since Congress had not exercised its right to regulate bridging the river, the states could do so.[100] Therefore Virginia had created the bridge company and authorized it to build the bridge. Virginia's statute was proof against common law nuisance.[101] With regard to the Northwest Ordinance, the bridge company answered that Virginia had never ceded the Ohio River within the state's boundaries: the Northwest Ordinance did not apply.[102]

The bridge company also answered on other procedural grounds.[103] Pennsylvania could not sue in equity because the case did not fall within the traditional limits of

equity jurisdiction. The defendants insisted that if Pennsylvania citizens had sustained damage, they were entitled to redress by action at law in the federal court for the western district of Virginia, or in Virginia state courts.[104] According to the bridge company, Pennsylvania had known of the bridge for over two years and had done nothing. Since the complainant had slept on its rights, an equity court would not interfere.[105] Pennsylvania had also authorized bridges over navigable streams with lower clearances than the Wheeling Bridge. "With what grace or justice" the bridge company asked, can Pennsylvania "claim the interposition of a court of conscience, when every charge she has brought against the Wheeling bridge company falls with accumulated force upon herself?"[106]

Supreme Court jurisdiction turned on the nature of the parties to the suit. The original complaint stated that the bridge obstructed navigation on the Ohio River and would "interrupt, hinder, and disturb" the citizens of Pennsylvania in their lawful use of the Ohio River as a common highway.[107] The bridge would also "increase the difficulty, hazard, and expense of navigating it [the river] with their steamboats, carrying passengers and freight," and would "interrupt, diminish, and greatly destroy the trade, commerce, and business of the citizens of Pennsylvania."[108] Because of this "irreparable injury to her and to her citizens, as well as other citizens of the United States," Pennsylvania had brought the suit.[109]

By the amendment to the bill Pennsylvania's Attorney General added that the state had spent $30 million to construct a system of canals and railroads, and received revenues in tolls amounting to $3 million annually.[110] The Wheeling bridge would "interrupt, hinder, and obstruct the passage of steamboats" carrying passengers and freight to and from the state's public works, and would "deprive your complainant of the benefit and advantage thereof."[111] Therefore the bridge caused "great damage and irreparable injury" to Pennsylvania as the owner of the state system of improvements.[112]

The bridge company disagreed. In their answer to the original bill they declared that "the complainant has no corporate capacity to become party to a suit in this court."[113] According to the defendants no right of sovereignty or eminent domain was involved, and therefore the State of Pennsylvania could not properly prosecute the suit. If the allegations of the bill were true, the defendants continued, then the appropriate remedy would be at the suit of the United States in the interest of all citizens.[114]

The bridge company also questioned the identity and motives of its adversary. According to the bridge company answer, owners and builders of steamboats "with pipes of extravagant and unnecessary length," actuated by motives of "local commercial rivalry," were the true litigants.[115] If the "real adversaries" came out from behind the complainant

of record, then "it would be easy to show, that the opposition to their bridge at Wheeling was not . . . that the navigation of the Ohio may be protected, but that . . . the passage of the Baltimore and Ohio railroad across the Ohio may be defeated."[116]

The third question before the court was whether the bridge obstructed the navigation of the Ohio River. The plaintiff's original bill alleged that the bridge at Wheeling would "hinder and prevent" the passage of steamboats.[117] Pennsylvania contended that the bridge company had thus violated the Virginia statute which required that the bridge not obstruct navigation "in the usual manner" by steamboats and other craft "when the river shall be as high as the highest floods therein heretofore known."[118] According to Pennsylvania the highest recorded flood (1832) had measured 44-1/2 feet at Wheeling.[119] At the time of the suit the "average height" required by steamboats "commonly accustomed to navigate" the river was sixty-five feet above the surface of the water.[120] The bridge at the proposed height of 93-1/2 feet would obstruct steamboats of the average height "on the usual spring floods" which often attained thirty-five feet.[121] In the amendment to the original bill Pennsylvania requested an injunction commanding the bridge company to desist from building "at any height less than 130 feet above low water."[122] Pennsylvania's supplemental bill stated that the

bridge company had stretched cables for a footbridge across the river on August 14, 1849.[123]

The bridge company responded that "without great arrogance" they could claim credit for having taken "more care and used greater precautions" to maintain unobstructed navigation "than has ever been practised by any State or incorporated bridge company."[124] Their bridge design included a single span "the greatest ever attempted before" and a vertical clearance "substantially equal to the greatest elevation that had ever been thought of or suggested."[125] The Wheeling bridge met or exceeded the plans of Lts. Dutton and Sanders and Ellet's 1836 and 1843 proposals.[126] According to the company the complainant's objections to the headway provided by the Wheeling bridge were based on the "extraordinary" 1832 flood when "navigation was to all intents and purposes suspended during its continuance."[127] Further, the defendants objected to Pennsylvania's statement that spring floods attained the "usual" height of thirty-five feet. On the contrary, the bridge company declared "the average extreme height" of the spring floods was between twenty-eight and twenty-nine feet and "rarely remain[ed] at such an extreme height for twenty-four hours at a time."[128]

Pennsylvania's evidence on steamboat chimneys was also erroneous since "nothing affixed or belonging to any steamer is higher than the pilot-house [forty-five feet above the waterline], except the pipes or chimneys."[129] Chimneys had

been lengthened to ostensibly increase the draft of the engines. But the bridge company contended when increased draft was required, "ordinary, economical and convenient mechanical adaptations--such as a blower or a blast pipe--will serve the purpose as effectually [sic] as the prolongation of the height of the chimney."[130] Other efficient adaptations included joints or hinges by which the chimney could be lowered "with no detention or loss of headway."[131] Such moveable chimneys were routinely used at the Louisville and Portland Canal where steamboats passed under the canal bridge "without inconvenience."[132] The defendants denied that their bridge would "hinder or prevent" the passage of steamboats "as they are commonly accustomed" to navigate the river.[133] They closed by asking that the suit be dismissed.

Justice Grier delivered his opinion on August 30, 1849.[134] He declared that the Wheeling Bridge "will not suffer a large class of steamboats to pass down the usual channel of the river, in the highest flood."[135] He acknowledged instances where drawbridges "have been suffered to stand without complaint, notwithstanding that the passage along the greater portion of the channel has been obstructed."[136] Where a bridge could not be built without in some measure affecting the navigation, he stated that "it often becomes a matter of necessity that the franchise of navigation should be constrained and straightened to meet the exigency" in the interest of "great public utility."[137]

However, in the case before him Virginia had required that the bridge not obstruct navigation, and the company had violated the terms of the charter. According to Grier, the proposed configuration "compel[led] the navigation to yield to their convenience."[138] The bridge company had argued that the cost of building at a greater elevation would exceed their budget, but Grier found such an excuse "cannot authorise them to compel the navigators of the Ohio to incur expense and undergo trouble and danger to accommodate the small capital of the company."[139] Since "all grants of exclusive privileges being derogations of public rights must be construed strictly," it was no justification that their bridge was "but a small encroachment or a little nuisance."[140]

Regarding the jurisdiction of the Supreme Court, Justice Grier agreed with the defendant's position that the complainant had no status in the original bill. Pennsylvania could not sue on the basis of injury to the state's citizens or trade.[141] But Grier recognized the claim in the amendment to a particular injury to the state's corporate capacity as owner of "immense and extensive improvements."[142] Pennsylvania had alleged that the state's canals and railroads would be "greatly injured" by the bridge, and Grier found that the state "may probably be able to support" such a complaint.[143]

On the question of procedure Grier found no evidence of irremediable injury (a necessity for a writ of

injunction).[144] In the absence of such evidence "a single judge will not be justifiable [sic] in exercising this delicate and dangerous power [granting the writ] which has been confided to the court."[145] He refused without prejudice to grant an injunction, and sent all case documents filed to the Supreme Court clerk. He also ordered that the defendants answer the amendment and supplemental bill within thirty days.[146] The complainant could move for an injunction at the next term of the Court, and the case would have precedence on the list.[147]

Between 1847 and 1849 the Wheeling and Belmont Bridge Company had endeavored to build a bridge meeting the needs of the public for land conveyance and at the same time keeping the river free from obstruction. Steamboat and railroad interests in Pennsylvania believed that the bridge company had failed in this task. In the hearing before Justice Grier they claimed the absolute right of unrestricted navigation, while the bridge company demanded equal regard for the rights of land transportation. In his decision Grier only touched briefly on the factual part of the controversy which would consume the energies of a phalanx of lawyers over the next two years--to what extent navigation might be "constrained" in the interest of "great public utility." But by referring the case to the full Court Grier acknowledged that balancing the relative rights of land and water transportation transcended the province of a single justice.

Notes

1. "An Act to revive and amend the act entitled 'an act incorporating a company to erect a tollbridge over the Ohio river at Wheeling,' passed February 17, 1816, and the act amendatory of said act, passed March 10, 1836," passed March 19, 1847 (hereafter cited as [Wheeling and Belmont Bridge Company Act [1847]).

2. In 1847 in U.S. v. New Bedford Bridge Company Justice Levi Woodbury had determined that no federal law had defined obstruction of navigable waterways. 1 Wood. and M. 401 (27 Fed. Cas. 91).

3. "Answer of the Wheeling and Belmont Bridge Company," filed August 15, 1849, Record: State of Pennsylvania v. the Wheeling and Belmont Bridge Company, William Ottersan, and George Croft ([Washington, DC]: Gideon, [1850]), 30, 33 (hereafter cited as Record).

4. Bridge at Wheeling, Virginia, 25th Cong., 2d sess. (1838) H. Rept. 993, 39.

5. When the bridge company reorganized in 1847 the legislature required that the new company buy out the Zane's Ferry proprietors in a cash-stock deal. Wheeling and Belmont Bridge Company Act (1847).

6. 25th Cong., 2d sess (1838) H. Rept. 993, 40-41.

7. Ibid. 41-42.

8. Cumberland Road East of the Ohio, 24th Cong., 1st sess. (1836) H. Rept. 672, 1, 33, 35. Estimate of masonry work based on comparison of costs.

9. 24th Cong., 1st sess. (1836) H. Rept. 672, 28-29; 25th Cong., 2d sess. (1838) H. Rept. 993, 43-51.

10. 24th Cong., 1st sess. (1836) H. Rept. 672, 26; 25th Cong., 2d sess. (1838) H. Rept. 993, 43. Truss design developed rapidly in the 1830s and 1840s. The designs of the 1830s were intended for wood. By 1838-1840 a transitional truss had been developed by William Howe. The longest (250 feet) Howe truss in wood was

constructed in 1862. Iron became a popular bridge material about 1850 and had been employed in truss designs developed in the 1840s. The first long span iron bridge was a 320-foot railroad bridge across the Ohio River at Steubenville built between 1862 and 1865. See David Plowden, Bridges: Spans of North America (New York: Norton, 1974), 38-74; and Llewellyn Nathaniel Edwards, A Record of the History and Evolution of Early American Bridges (Orono, ME: the author, 1959).

11. 24th Cong., 1st sess. (1836) H. Rept. 672, 20.

12. 25th Cong., 2d sess. (1838) H. Rept. 993, 56.

13. 24th Cong., 1st sess. (1836) H. Rept. 672, 35.

14. Bridge at Wheeling, 28th Cong., 1st sess. (1844) H. Rept. 79, 3.

15. Ibid. 3-4.

16. 25th Cong., 2d sess. (1838) H. Rept. 993, 40.

17. Ibid. 41.

18. 28th Cong., 1st sess. (1844) H. Rept. 79, 4. To Ellet "an inconvenient height" meant that teamsters would have to add extra draft animals or railroads more powerful locomotives in order to ascend the steeper grades of a more elevated bridge.

19. Ibid.

20. Ibid. H.R. 10, the bill which included the provision to erect the bridge at Wheeling, also included appropriations of $400,000 to extend the National Road in Ohio, Indiana and Illinois, but representatives from the eastern states refused to consider such a large expenditure and the bill died at the end of the session. Congressional Globe, 28th Cong., 1st sess., 692.

21. Henry Moore to Charles Ellet, June 3, 1847. Charles Ellet, Jr. Papers, Engineering Library, University of Michigan. Hereafter cited as Ellet MSS.

22. Ibid.

23. David B. Steinman, The Builders of the Bridge: The Story of John Roebling and his Son (New York: Harcourt, Brace, 1945), 78-99.

24. Charles Ellet, Jr., A Popular Notice of Suspension

Bridges with a Brief Description of the Wire Bridge across the Schuykill at Fairmont (Philadelphia: John C. Clark, 1843).

25. H. Rept. 672: 15-33. Charles Ellet, Jr., Report and Plan for a Wire Suspension Bridge, Proposed to be Contructed across the Mississippi River at Saint Louis (Philadelphia: William Stavely and Company, 1840).

26. John A. Roebling, Report and Plan for a Wire Suspension Bridge, Proposed to be Erected over the Ohio River at Cincinnati (N.p., 1846).

27. Correspondence of Lot Clark, Charles B. Stuart and Washington Hunt to Charles Ellet, Jr. May to September, 1847, Ellet MSS. On September 28, 1847 Ellet received notice from the Niagara Falls Bridge Company that he had been selected as engineer. Ellet prepared his design and entered into a memorandum of agreement with the Niagara Falls Suspension Bridge Company and the Niagara Falls International Bridge Company on November 9, 1847, Ellet MSS.

Ellet began correspondence with parties at Hartford regarding a railroad bridge at Middletown in May, 1847. He visited the proposed site in January, 1848 and issued his report about May, 1848. Ellet MSS. Charles Ellet, Jr., Report of a Railway Suspension Bridge across the Connecticut at Middletown (Philadelphia: John C. Clark, 1848).

28. Wheeling Times and Avertiser, June 15 and 16, 1847. Henry Moore to Charles Ellet, Jr., June 3, 1847 and James Baker to Charles Ellet, Jr., July 14, 1847, Ellet MSS.

29. John A. Roebling to [Wheeling and Belmont Bridge Company], "Proposal for Wheeling and Belmont Wire Suspension Bridge," [July, 1847], Wheeling Bridge Papers, Oglebay Institute, Wheeling, West Virginia (hereafter cited as WBP, Oglebay).

30. Charles Ellet, Jr. to Wheeling and Belmont Bridge Company, July 22, 1847, Ellet MSS.

31. Roebling, "Proposal for Wheeling and Belmont Wire Suspension Bridge," [1847], WBP, Oglebay.

32. Ibid.

33. Ibid.

34. Ibid.

35. Ibid.

36. Ibid.

37. Ibid.

38. Ibid.

39. Ibid.

40. Ibid.

41. Ibid.

42. Ibid.

43. Thomas Sweeney and Edward Fitzhugh to Charles Ellet, Jr., July 14, 1847, Ellet MSS.

44. Ellet correspondence of August and September, 1847, Ellet MSS.

45. James S. Wheate (Wheeling City Clerk) to Charles Ellet, Jr., October 8, 1847, enclosing a copy of the resolution of the City Council. Ellet MSS.

46. Charles Ellet, Jr., Report on the Wheeling and Belmont Suspension Bridge, to the City Council of Wheeling (Philadelphia: John C. Clark, 1847), 7-9. The discussion which follows presents Ellet's published account of his bridge proposal, written after he had secured the commission. No copy of his original proposal to the bridge company survives. Ellet's pamphlet, therefore, does not parallel Roebling's proposal. Roebling presented his proposal to the bridge company to secure the commission, Ellet, having already secured the commission, explained to the general public the positive features of his design.

47. Ibid. 7.

48. Ibid.

49. Ibid. 7-8.

50. Ibid. 8.

51. Ibid. 9.

52. Ibid.

53. Thomas Sweeney to Charles Ellet, Jr., December 14, 1847, Ellet MSS.

54. Israel Dickinson to Charles Ellet, Jr., January 30,

1848, Ellet MSS.

55. Charles Ellet, Jr. to Elvira Ellet, November 23 and December 1, 1847, Ellet MSS.

56. Charles Ellet, Jr. to Elvira Ellet, November 23, 1847, Ellet MSS.

57. Ibid.

58. A. A. Quarrier to Charles Ellet, Jr., May 3, 1848, Ellet MSS.

59. Israel Dickinson to Charles Ellet, Jr., December 12, 1847, Ellet MSS.

60. Israel Dickinson to Charles Ellet, Jr., September 26 and December 25, 1847, Ellet MSS.

61. A. A. Quarrier to Charles Ellet, Jr., May 3, 1848, Ellet MSS.

62. Israel Dickinson to Charles Ellet, Jr., February 26, 1849, Ellet MSS.

63. Benjamin H. Latrobe to Charles Ellet, Jr., May 9 and May 31, 1849, Ellet MSS; and American Railroad Journal 22 (1849): 626-627.

64. "Petition of the Stockholders of the Wheeling and Belmont Bridge Company," in petitions to the Virginia General Assembly, dated January 1, 1849, Virignia State Library (hereafter cited as VSL).

65. Ibid.

66. Ibid.

67. Ibid.

68. Ibid.

69. Ibid.

70. Ibid. Overall the bridge sloped at the rate of four feet of vertical drop per 100 linear feet. But the deck of the bridge arched upward three feet in the center.

71. Ibid.

72. Ibid.

73. Ibid.

74. Ibid.

75. "Petition of Sixty-three Citizens of the City of Wheeling to authorize the City Council to subscribe for stock in certain railroads," in petitions to the Virginia General Assembly, filed January 11, 1849, VSL.

76. Ibid.

77. Ibid.

78. Ibid.

79. The four corporations chartered in 1847-48 were the Wheeling Hotel Company, the Wheeling Glass Manufacturing Company, the Wheeling Atheneum and the Wheeling Female Seminary.

80. During the 1848-1849 session the legislature chartered the Wheeling Savings Bank.

81. Ellet, Report on the Wheeling Bridge, 37.

82. Ibid. 38.

83. Ibid. 26.

84. Ellet's Report on the Wheeling and Belmont Suspension Bridge had been widely circulated at Pittsburgh. See Record, 25.

85. Pittsburgh Commerical Journal, June 27, 1849.

86. Ibid.

87. "Notice of Motion," filed August 25, 1849, Record, 38.

88. Ibid.

89. James Baker to Charles Ellet, Jr., August 3 and 6, 1849, Ellet MSS.

90. James Baker to Charles Ellet, Jr., August 6, 1849, Ellet MSS.

91. Ibid.

92. Robert C. Grier, The State of Pennsylvania vs. the Wheeling and Belmont Bridge Company (Philadelphia: n.p., 1849), 1.

93. "Notice of Motion," filed August 25, 1849, Record, 38.

94. The original bill and the amendment both bear the date of August 1, 1849. Since the Wheeling and Belmont Bridge Company only had notice of original bill, I assume they received it at the same time they received notice of the suit, and that it should be dated July 25, 1849 and the amendment dated August 1, 1849. See Record, 4-8. "Supplemental Bill," dated August 14, 1849, Record, 36. For statement that Supplemental Bill was filed at hearing see Grier, The State of Pennsylvania, 5. For mention of the affidavits see Grier, The State of Pennsylvania, 6-7.

95. "Answer of the Wheeling and Belmont Bridge Company," filed August 15, 1849, Record, 21-35. That the bridge company had not received notice of amendment see Grier, The State of Pennsylvania, 5.

96. Grier did not mention that the bridge company filed affidavits. But a letter from Cornelius Darragh to the bridge company indicates that the bridge company read affidavits from five individuals before Justice Grier. I have been unable to locate any of the affidavits of either party. Cornelius Darragh to the Wheeling and Belmont Bridge Company, November 24, 1849, U.S. Supreme Court, Pennsylvania v. Wheeling and Belmont Bridge Company, Record Group 267, National Archives (hereafter cited as Pa. v. WBBC, National Archives.

97. Grier, The State of Pennsylvania, 6-12.

98. The full case title is State of Pennsylvania v. Wheeling and Belmont Bridge Company, William Ottersan and George Croft. William Otterson and George Crofts [both variously spelled] were also listed as defendants in the original bill. They answered that they had no interest in the subject of the controversy. They were employed by the bridge company as superintendents of the stone work of the bridge. Their names continued to be cited in the suit. "Answer of William Otterson and George Crofts," filed August 15, 1849, Record, 35-36.

99. "Original Bill of Pennsylvania," August 1 [July 25], 1849, Record, 6.

100. Ibid. 21.

101. Ibid.

102. Ibid.

103. Paul M. Kurtz in "Nineteenth Century Anti-Entrepreneurial Nuisance Injunctions--Avoiding the Chancellor," William and Mary Law Review 17 (1976): 621-670, discusses the traditional scope of equity

jurisdiction at 629-637.

104. "Answer of the Wheeling and Belmont Bridge Company," filed August 15, 1849, Record,26.

105. Ibid. 34.

106. Ibid.

107. "Original Bill of Pennsylvania," August 1 [July 25], 1849, Record, 5.

108. Ibid.

109. Ibid. 6.

110. "Amendment to the Original Bill of Pennsylvania," August 1, 1849, Record, 6, 7.

111. Ibid. 8.

112. Ibid.

113. "Answer of the Wheeling and Belmont Bridge Company," filed August 15, 1849, Record, 26.

114. Ibid. 27.

115. Ibid. 33.

116. Ibid.

117. "Original Bill of Pennsylvania," August 1 [July 25], 1849, Record, 5.

118. Ibid.

119. Ibid. 6.

120. Ibid.

121. Ibid.

122. "Amendment to the Original Bill of Pennsylvania," August 1, 1849, Record, 9. The amendment did not explain how the height of 130 feet had been selected.

123. "Supplemental Bill of Pennsylvania," August 14, 1849, Record, 37.

124. "Answer of the Wheeling and Belmont Bridge Company," filed August 15, 1849, Record, 28.

125. Ibid.

126. Ibid. 28-29.

127. Ibid. 30.

128. Ibid.

129. Ibid. 31.

130. Ibid.

131. Ibid.

132. Ibid.

133. Ibid. 33.

134. "Order of the Court," August 30, 1849, Record, 38.

135. Grier, The State of Pennsylvania, 13.

136. Ibid. 14.

137. Ibid.

138. Ibid.

139. Ibid. 15.

140. Ibid. 16.

141. Ibid. 17-18.

142. Ibid. 18.

143. Ibid.

144. Ibid. 19.

145. Ibid.

146. Ibid. 20.

147. Ibid. 21.

CHAPTER VII
PROVING INJURY

Pennsylvania's request for a preliminary injunction had asserted that the Wheeling bridge, by obstructing steamboats passing to and from the western terminus of the Main Line at Pittsburgh, injured the state's Public Works' revenues. Although Justice Grier admitted that Pennsylvania "may probably be able to support" this contention, no such showing of injury had been made at the hearing in Philadelphia.[1] Recital of bridge and boat dimensions, however, indicated that the bridge when completed would block some of the tallest boats on high stages of water.

The crux of factual matters for both parties related to whether occasional detention of a few boats injured Pennsylvania. Between Justice Grier's referral of the case late in the summer of 1849 and the hearing before the full Court late in the winter of 1850, both sides collected testimony. Counsel for the parties, not content with assembling formidable arrays of experts on steamboat operation and bridge design and arguing their cases before the justices, also resorted to the tactics of enlisting the editorial backing of local newspapers and lobbying for state legislative support.[2]

The case argued before Justice Grier was also argued in the Pittsburgh and Wheeling newspapers as well as the papers of other cities with commercial ties to the Ohio River Valley. The press passed briefly over questions of procedure and jurisdiction and settled on the motives of the two parties and the nature of the obstruction. The matter came to public attention in early July, several weeks before Pennsylvania filed notice for a writ of injunction.

On June 27, 1849 the Pittsburgh Commercial Journal had printed a call of "leaders, merchants and rivermen" for a meeting "to take into consideration the obstruction to the navigation of the Ohio" by the bridge at Wheeling and "to determine what measures ought to be adopted for the prevention of an object so likely to result in injury to the navigation of the Ohio River."[3] The Wheeling Gazette of July 4, 1849 quoted part of the announcement, and its editor noted that although Pittsburgh had had notice of the bridge project for over a year, the city's leaders had not objected before the bridge company had spent most of their capital. "If the omission to protest at the proper time proceeded from neglect, the Pittsburghers should bear the consequences of their own laches without repining; if it was intentional, the breach of comity is flagrant."[4] The editor reasoned that Pittsburgh leaders had not objected sooner because they "desired to postpone such exhibition of her [Pittsburgh's] small selfishness and utter impotence to arrest the erection of the bridge."[5]

The following week the Gazette editor charged Pittsburgh interests with a "natural animosity to Wheeling" and "a desire to intimidate capitalists from subscribing to the stock" of the Baltimore and Ohio and Central Ohio railroads "whose cars are to traverse the bridge."[6] Four days later in an article entitled "The Day of Retribution is at Hand!" the Gazette editor "tried" Wheeling citizens for a series of "crimes."[7] Wheeling had not had sufficient "fear of their most sovereign majesties the denizens of Pittsburgh," had proceeded to build the bridge "without consulting their immaculate worships, the people of Pittsburgh," and had "acted from the presumptuous belief that you [citizens of Wheeling] had a right to construct works of internal improvement" without "supplicating or employing permission from your potent and gracious masters" at Pittsburgh.[8]

"Justice" also demanded that Pittsburgh crimes be published. This time there was no sarcasm. According to the Gazette editor Pittsburgh had obstructed the navigation to all points above the city by bridges, dam and canal aqueducts. Even small boats could only proceed up the Alleghany and Monongahela rivers "at very low water, and by taking down their pipes."[9] To avoid the dam, boats had to purchase passage through a lock. "Wheeling has concluded to entertain no proposition for abandoning the bridge . . . , until Pittsburgh shall have thoroughly and tetotally cleaned

out all of the obstructions by which she has destroyed the navigation."[10]

During the next few weeks the Gazette quoted other papers. The Beaver, Pennsylvania Argus believed that the bridge would obstruct navigation.[11] The Parkersburg, Virginia Gazette caustically remarked that "[f]rom the accounts of the brilliant advantages of that stupendous structure [the Wheeling Bridge], one might have imagined that said bridge was planned after the model of Jacob's ladder--one end resting in Wheeling and the other leading right up into Paradise!"[12] The Kanawha, Virginia Republican described the fact-finding visit to Wheeling of a Pittsburgh committee who were "courteously received" and "cheerfully given" requested information.[13] The Washington, Pennsylvania Examiner summarized the "most important claims, assertions & c." of the two parties, and assured its readers that the matter would soon be adjudicated.[14] The editor concluded that he felt "certain" that if Pittsburghers succeeded at law "the citizens of Wheeling will give them no little trouble in keeping their own bridges in their present position."[15]

The National Intelligencer published a long statement of the facts and compared the Wheeling bridge with bridges at Pittsburgh. According to the article, the Wheeling bridge, carrying "the great central mail route" and "one of the great thoroughfares" connecting East and West, would reduce "the inconvenience and vexation often experienced in

the winter" by travellers.[16] On the other hand the author did not question the importance of steamboat tonnage, but stated "important as is the trade up and down the river, that which passes over it can hardly be said to be less important."[17] He then raised the issue of "debarring the public travel from the privilege" of crossing the Ohio River "in order that a few steamboats may be saved the paltry expense of procuring hinges for lowering their chimneys a few times a year . . . which smaller boats have to do in passing under the bridges at Pittsburgh."[18]

The Philadelphia North American printed a list of arguments presented by a Wheeling bridge advocate and added the editorial comment that Ellet, "an engineer of high distinction" had his professional reputation "at stake" in the matter of obstructing the river.[19] Referring to Ellet's "great project" of permanently improving the navigation of inland waterways by a reservoir system, the editor explained that the engineer would not jeopardize such a program of "vast public utility and undoubted practical execution."[20] He concluded that "[i]t can scarcely be believed that . . . he [Ellet] can be engaged upon a scheme [the bridge] the effect of which . . . would be to place the most fatal obstacle" in the path of his reservoir proposal.[21]

The Cincinnati Gazette of July 20 published a long letter to the editor, including an extensive description of the bridge. The letter stated "the majority of our steamboat chimnies are not over sixty feet above the water

line," and questioned whether they should be more than fifty feet, which was "amply sufficient to carry off the smoke."[22] The author also reported that government steamers had chimneys "constructed in sections like a spyglass."[23] He concluded that river steamers should adopt similar mechanisms or increase chimney draft by means of blowers.

Newspaper reports of the dispute over whether the Wheeling suspension bridge would obstruct navigation on the Ohio River described the disputants as the cities of Wheeling and Pittsburgh and to a lesser extent identified the competing rivalries of railroad and steamboat. Without exception the press introduced the public to a matter of commercial and technological rivalry; reports rarely identified Pennsylvania or the bridge company as litigants.[24]

As the summer advanced the animosity between the editors of the Wheeling Gazette and the Pittsburgh Commerical Journal increased. In late August the editor of the Commerical Journal wondered that the Wheeling press considered Pittsburgh citizens "such egregious asses as to permit an obstruction to the navigation of the river?"[25] According to the Commerical Journal Pittsburgh interests "will exhaust the remedies the laws afford."[26] Failing these, Pittsburghers would "resort to that 'unwritten law' which arms every community with power to abate a public nuisance by its own hand."[27] The injury inflicted by the

Wheeling Bridge "will band and arm men in the silent watches of the night to set law at defiance and blow up their bridge."[28]

In response to this threat the Gazette published a letter from "Subscriber" which warned marauding Pittsburghers "to visit a noted spot in our city where once was a bridge . . . (where authorities have been accustomed to hang culprits)."[29] "Subscriber" threatened not only a rough reception at Wheeling, but also that the "incendiary feelings" engendered by the Commercial Journal would provoke those similarly injured by Pittsburgh's bridges to resort to the same tactics.[30]

Following the editorial rancor of August the newspapers of Wheeling and Pittsburgh settled down to reporting other news. Justice Grier's opinion did not conclude the issue, but had postponed the need to rally supporters until the Supreme Court hearing. At the same time river news was not conducive to stirring passions--the Ohio River rarely rose above the four-foot level until mid-October, and with the large boats out of service there could be no obstruction.[31] In the meantime the bridge company completed stringing cables and suspending the deck.[32]

With the bridge nearing completion the Pittsburgh papers returned to threats. The Commerical Journal reported on November 10 that individual bridge company stockholders would be liable in their private capacities for damages sustained by steamboats unable to complete their trips.[33]

Since Wheeling banks had subscribed to bridge stock the Commerical Journal declared that their annual liability would amount to the value of the stock they held. On the same day the Pittsburgh Dispatch offered a more immediate threat: noticing that the bridge would be lighted by 1,010 lamps on the opening night, the Dispatch suggested that the bridge company "employ some of our steamboat men to get up the illumination. They would make a much grander one, with no expense for oil!"[34]

The Wheeling Gazette of November 14 noted the problems of boats "with unnecessarily tall chimneys."[35] On November 11 just after midnight the Hibernia #2, one of the tall Pittsburgh boats, had been unable to pass under the bridge. Rather than lower his chimneys, the Hibernia's captain abandoned his trip and transferred passengers and cargo to other conveyances while he waited for the river to fall sufficiently to allow the Hibernia to continue upstream.[36] In the meantime other large boats lowered their chimneys and continued on their way "--thus proving that the bridge presented no real obstruction."[37]

On November 17 the Gazette devoted most of its columns to the festivities of the bridge opening two days before.[38] Congratulatory letters from Governor John B. Floyd of Virginia, Henry Clay, B. and O. President Thomas Swann and other dignitaries had been read and toasts proposed honoring the bridge company officers, the engineer, the City of Wheeling and the State of Virginia. Other newspapers

carried reports of the parade and banquet as well as reports of the Hibernia's detention.[39]

While the newspapers reported events and attitudes related to the bridge controversy, the bridge company prepared its answer to the amendment and the supplemental bill as ordered by Justice Grier. That answer, dated November 7, 1849, renewed the accusation that Pennsylvania was not a party to the suit, but the stalking horse of Pittsburgh steamboat interests.[40] The bridge company demanded proof from elected representatives of the citizens of Pennsylvania that the state had intended to bring suit.[41] The bridge company also denied that the case was properly before the equity side of the court since the "inconvenience and dangers" claimed by the plaintiff were "merely eventual and contingent."[42] "They have not occurred and may never occur."[43] Nor were they "irreparable."[44] Under such circumstances the court should dismiss the bill.[45]

Regarding the factual matters before the Court, the bridge company asked the Court to balance the interests of land and water transport. The new suspension bridge provided a "safe, speedy and cheap means of transit" across the river "for the mails and the immense amount of freight and the rapidly increasing number of travellers" brought to Wheeling by the National Road "and other improvements now finished or in progress."[46] In time of war the bridge would be used to carry military dispatches and troops.[47] What was in the best interest of the country, they asked, to subject

six steamboats "to the necessity of having hinges or sliding sections to their chimneys, so as to avoid the remote contingency of strking against the bridge in . . . a very high freshet, or that the grand national highway . . . should be severed by an impassable gulf?"[48]

The bridge company also addressed public rights to use the navigable streams as well as to cross such streams and "to employ the facilities necessary for the exercise of that right."[49] They declared that navigation rights must have a "reasonable construction."[50] Invoking the common law nuisance maxim sic utere tuo ut alienum non laedas (use your own so as not to injure others), the bridge company concluded that both rights must coexist "in a spirit of concession," and they asked the Court to confine the right of navigating the river "within its legitimate limits."[51]

Within a week of the Wheeling and Belmont Bridge Company answer, conditions on the river changed when the runoff from recent rains raised the level of the river. On November 10 the river rose to twenty feet and on the 11th to 25-2/3 feet.[52] On the night of the 10th the Messenger arrived and was unable to clear the bridge until 7-1/2 feet had been cut off her chimneys. On the 11th the Hibernia was unable to pass the bridge and shifted her passengers and cargo to a smaller vessel.[53]

On November 20, 1849 Pennsylvania filed its second supplemental bill alleging the obstruction of the Messenger and Hibernia and the consequent "loss and injury" to the

Hibernia's owners, to the trade of Pittsburgh, to the commerce of Pennsylvania, "and to her public works along which said freight and passengers would otherwise have been transported to Philadelphia."[54]

The Pennsylvania bill also identified the interest of the state in the construction of sea-going boats propelled by wind and steam. According to the bill "divers citizens of Pennsylvania" were engaged in building these vessels at Pittsburgh where they could be built "20 per cent. cheaper" than at the seaboard.[55] This construction would "increase the wealth, resources and revenue of the State, and tend to her honor and prosperity."[56] Citizens of Pennsylvania had "at sundry periods, for more than forty years" built these "propellers" and the unobstructed navigation of the Ohio River was "absolutely essential" for the conduct of this business.[57] The Wheeling bridge would prevent passage of these vessels "with their masts and rigging" and thereby give "great preference and advantage" to builders of propellers at shipyards further downriver (in other states).[58] The port of Pittsburgh would be injured as well as the state's public works. Pennsylvania prayed that the Court enjoin the defendants from "erecting or keeping over and across the channel of said river any obstruction to the navigation thereof."[59]

While the bridge company and Pennsylvania filed supplemental documents, their attorneys were busy collecting depositions regarding the facts disputed in the case.

Between October 13, 1849 and January 3, 1850 attorneys for Pennsylvania took the depositions of fifty-two witnesses in St. Louis, Cincinnati, Pittsburgh, Trenton and Washington, while attorneys for the bridge company questioned twenty-seven witnesses of their own in Cincinnati, Louisville, Wheeling and Philadelphia.[60] Experts in steamboat construction and operation, civil and steam engineering, and commerce and trade along the river appeared for both sides and testified as to whether they considered the bridge an obstruction or not.

Pennsylvania presented testimony on six major points. The state called twenty-two steamboat officers and two steamboat inspectors to show that only the Wheeling bridge offered an obstruction to the natural Ohio-Mississippi waterway (first point). These witnesses and four steam engine builders also covered Pennsylvania's second point, that modification of tall steamboat chimneys was unreasonable. Sixteen of these experts served as officers or builders for the Pittsburgh and Cincinnati packet line whose boats were the tallest on the upper Ohio River. They spoke variously of the expense of chimney modification, the decreased life-expectancy of moveable chimneys, the lost time spent in raising and lowering them and the dangers to boat and crew inherent in the task. They also condemned short chimneys with artificially increased draft (blowers and steam jets) as inferior to the natural draft of tall chimneys.

Six of the steamboat officers also addressed the detention of the Hiberia and Messenger and showed the actual losses sustained by the boat owners as well as the estimated losses caused by the Hibernia missing her next trip (third point).[61] These officers also indicated that lost faith in the Hibernia's ability to maintain her schedule would divert trade and passengers to other conveyances.[62] Pennsylvania's attorneys used this evidence to lead to the fourth point (that the property of the state invested in the Public Works had suffered injury because of the bridge). Relying on the testimony of seven forwarding and commission merchants and businessmen for the relative volume of trade and passengers carried on the Pittsburgh-Cincinnati packets, the attorneys attempted to show that obstruction of these boats would seriously hamper the carriage of freight brought to and taken from the Pennsylvania Main Line.[63] As final proof the Pittsburgh toll collector for the public works gave his opinion of the potential damage to the state.

On the fifth point, that the bridge would obstruct sea-going vessels built at Pittsburgh, Pennsylvania presented depositions of eight individuals who either remembered the industry of the 1800s and 1810s, or who were currently engaged in building propellers. On the final point, dealing with alternative solutions to the existing Wheeling bridge, seven civil engineers provided testimony. Their depositions centered on whether John A. Roebling's proposed bridge for Cincinnati represented a superior solution for spanning the

Ohio River or whether an even higher bridge design was feasible.[64] Each engineer presented his own preferred design (with heights from 117 to 130 feet) and attempted to show why his solution was best. The operator of the Monogahela River ferry near Pittsburgh also testified that steam ferries could accommodate the passengers and freight currently crossing the Ohio River on the bridge at Wheeling.

Pennsylvania's points two and three received the most attention. The evidence demonstrated that the bridge would potentially obstruct at high water seven boats which had not modified their chimneys. But in terms of actual obstruction four and one-half months had passed since cables had been drawn across at Wheeling, and only the Hibernia had been blocked on November 11 and again on December 18. And the testimony of steamboat officers could only show damages to boats, not what impact this obstruction had on Pennsylvania's system of internal improvements.

The depositions of toll collector Levi G. Clover and Pennsylvania Speaker of the Senate George Darsie were critical to showing state injury. Clover testified that the "larger class of steamboats" carried most of the goods shipped on the Public Works to and from the Pittsburgh terminus.[65] If the bridge blocked these large boats, traffic would shift to small boats whose charges were higher. Clover believed "[t]his would drive off freight and passengers to other routes," and "[t]he effect would be ruinous."[66] Darsie presented actual receipts over the Main

Line from Pittsburgh to Philadelphia for the two preceding years. But of the five commodities identified, two (tobacco and lard) showed decreased receipts between 1847 and 1848 (before the bridge could have affected river carriage).[67] At best Pennsylvania's presentation was inconclusive.

The Wheeling and Belmont Bridge Company presented testimony on three major points. The company called thirteen steam engineers, nine steamboat officers and the Superintendent of the Louisville and Portland Canal to present evidence that the bridge did not obstruct steamboats (first point). The bridge company attempted to show that the Pittsburgh and Cincinnati packets were not obstructed since many of the boats navigating the Ohio River had either low or adjustable chimneys. According to the evidence low chimneys with artificial draft were just as efficient and safe as tall, natural draft chimneys. The evidence also demonstrated that adjustable chimneys (hinged or telescoping) were routinely installed on boats using the Louisville and Portland Canal. Standard operation of these chimneys caused no delay of the boats. Therefore the modification of the "excessively tall" chimneys of the Pittsburgh and Cincinnati packets was reasonable. Fitted-out with moveable chimneys these packets would not be obstructed by the Wheeling bridge.

Eight Philadelphia steam engineers testified to the use of low chimneys on steamboats plying eastern rivers, in the coasting trade and in Europe. Engineers at Cincinnati also

spoke on the efficiency of low chimneys. The superintendent of the canal testified to the thousands of times steamboats lowered their chimneys to pass through the canal each year, while steamboat officers testified to the ease of operation of adjustable chimneys. The builder of the telescoping chimney of the Telegraph #2 identified the cost for this apparatus at $100 and agreed to install similar equipment at $100 per boat.[68]

On the second point (that raising or removing the bridge was unreasonable) the bridge company presented the testimony of only one engineer, Israel Dickinson, who had been Ellet's clerk of the works on the Wheeling Bridge.[69] Dickinson testified about the feasibility of raising the bridge to 130 feet and the costs associated with such a modification. He estimated the total cost to rebuild the bridge at $242,980, plus an estimated $170,000 in damages to property which would be below the grade of the required bridge embankments. Dickinson also described Roebling's Wheeling bridge proposal and stated that it "would be an obstruction to the passage of the largest class of boats in any stage of water--even low water."[70] He concluded that Ellet's Wheeling bridge was "far preferable to one built upon the plan of Mr. Roebling, as it regards the convenience and facility of navigating the Ohio river."[71] Dickinson also rebutted Pennsylvania's evidence on the obstruction of sea-going vessels by declaring that in his three years at Wheeling he had never seen an ocean-going boat pass.

On the third point the bridge company also presented testimony to show that land traffic crossing the river was obstructed without the bridge. The Wheeling ferryman gave evidence on conditions at Wheeling before the bridge, particularly regarding the detention of the mails and the National Road wagons by ice and floods. He indicated that ice on the river had formerly detained the mail for a day or two on several occasions each year and that wagons had been detained for longer periods. The bridge toll collector testified to the volume of land traffic carried by the bridge during its first two weeks of operation. During this period 2,336 foot travellers, 387 travellers on horseback, 1680 wagons (one to six horse teams) and 766 animals (horses, cattle or hogs) in droves crossed the Ohio River on the bridge.[72]

The depositions for the defendants did not show an unobstructed river; and the testimony for the complainant did not conclusively show damage to the state. In the absence of irrefutable evidence on the primary issues of the case, both sides fell back on the secondary issues--whether or not the bridge and boats could be adapted to one another. This strategy had called for parades of expert witnesses stating their opinions on bridge design and steamboat technology and operation. Since knowledge about both was empirical, the testimony appeared to be a welter of conflicting opinions, with the large number of Pennsylvania witnesses favoring the complainant.[73]

Rebuttal evidence by the bridge company could have demonstrated no loss of state canal revenues, but the bridge attorneys did not pursue this course. They also failed to show contradictions in the Pennsylvania testimony or to call other Pittsburgh commission and forwarding merchants to identify the volume of goods and passengers carried on boats not obstructed by the bridge. Pennsylvania's attorneys, on the other hand, clearly demonstrated that the bridge had obstructed the Hibernia on two occasions.

The bridge company attorneys also could have questioned the interest of opposition witnesses in the outcome of the case. Pennsylvania's attorneys used this tactic on witnesses at Wheeling testifying on behalf of the bridge company.[74] While officers of the Pittsburgh and Cincinnati Packet Line had an obvious interest in the removal of the bridge, the bridge attorneys neglected to question the interests of other Pennsylvania witnesses.[75]

Faulty strategy underscored the logistical problems of the early phases of the Wheeling Bridge case. Because the Supreme Court rarely heard original jurisdiction cases involving significant factual disputes, attorneys for both sides requested instructions on presenting matters of fact to the Supreme Court.[76] Since depositions were taken at several sites simultaneously, both sides hired local attorneys in addition to those members of the Supreme Court bar who would argue the case. Either because of confusion

on how to proceed, or because of the many personalities involved, or because of the difficulty in communicating instructions, both sides suffered from confused strategies.

On October 23, 1849 Alexander H.H. Stuart agreed to aid the the bridge company "in resisting the monstrous attempt of a portion of the people of Pennsylvania to destroy one of the grandest works of the age."[77] Stuart's answer to the amended and supplemental bills of Pennsylvania marked a significant departure from the earlier, defensive bridge company answer. Stuart took the offensive by demanding that the complainant prove legitimate action had been brought in the interest of Pennsylvania and that the suit was not brought by certain citizens under color of state authority.

As counsel to represent the bridge company before the Supreme Court, Stuart was soon joined by Reverdy Johnson, the U.S. Attorney General, who agreed to appear for the bridge company in his private capacity.[78] Meanwhile at Cincinnati T.D. Lincoln took depositions for the bridge company, while James Dunlop, W. Taylor, Sweitzer and Morgan Nelson at Pittsburgh, William B. Hubbell at Philadelphia, and James Paull at Wheeling shared similar duties.[79] Nelson, a resident of Wheeling, was primarily responsible for cross-examination of Pennsylvania witnesses at Pittsburgh. However, he was detained in early December, 1849 in a suit for damages brought by the owners of the Hibernia against stockholders of the bridge company which

forced the company to bring in additional legal aid.[80] Edwin Fitzhugh of Wheeling, who along with Morgan Nelson served as both an officer of the company and as counsel, lobbied at Richmond in the bridge company behalf.[81]

Pittsburgh attorney Edwin M. Stanton had personally served notice of Pennsylvania's motion for an injunction on the bridge company in July, 1849.[82] Stanton also prepared and delivered the state's argument before Justice Grier in August, 1849 and in November advised Captain John Klinefelter of the Hibernia to discharge his passengers and freight at Wheeling in order to show obstruction.[83] In state court Stanton's partner Charles Shaler prosecuted the Hibernia's suit for damages against Morgan Nelson as an officer of Bridge Company.[84] Cornelius Darragh, Pennsylvania's Attorney General, officially represented the state before Grier and later before the Supreme Court.[85] By December Stanton and Darragh had been joined by Robert J. Walker, the former U.S. Secretary of the Treasury.[86] Pennsylvania state senator George Darsie represented Pittsburgh and Cincinnati Packet Line interests in the legislature at Harrisburg.[87] Pittsburgh attorneys T. F. Bigham, Leslie and Gilmore took depositions on behalf of Pennsylvania; Bigham also represented Pennsylvania when the bridge company took testimony at Wheeling.[88]

As the fall deposition spree wound down the Wheeling and Belmont Bridge Company petitioned the Virginia legislature for an amendment to their charter.[89] The bridge

company claimed that with "scrupulous fidelity" they had designed their bridge according to the intent of the 1847 charter, but asked "to be relieved from the inconveniences which are likely to grow out of the mere vagueness of the charter" by legislative designation of the actual bridge height as legal.[90] The petition recounted both the hearing before Grier brought about by the "sinister motive" of Pittsburgh and the threat of illegal violence if the court motion was denied.[91] According to the petition both action and threat demonstrated the "malignity" of the bridge's Pennsylvania rivals.[92] If "bridges must be erected so high as to overtop the tallest steamboat chimneys that the fancy of men may devise," the Ohio River could never be spanned by a bridge.[93]

Appealing to state solidarity, the bridge company "hoped that our own state will not leave the subject to the captious or capricious notions of those [out-of-state] tribunals in regard to the construction of our charter."[94] The company asked the legislature to grant the legal designation so that "in defending ourselves we shall only be obliged to defend the emiment [sic] domain of our Commonwealth and her right to legislate within her own boundaries."[95] The Virginia legislature granted the bridge company's request on January 11, 1850 when they declared that the bridge as erected "at the height of ninety feet at the eastern abutment, ninety-three and one-half feet at the

highest point, and sixty-two feet at the western abutment . . . [was] of lawful height."[96]

On February 2 the bridge company filed their supplemental answer describing "an amendatory and explanatory act" passed by the Virginia legislature to clarify the fourteenth section of their March 19, 1847 charter.[97] Wheeling bridge counsel explained that doubts had arisen as to the meaning of the section and "it was desirable to remove such doubts" with the new act which now answered the complainant's charge that bridge had not been constructed in conformity with the charter.[98] The Wheeling and Belmont Bridge Company therefore asked the Court to acknowledge the amended act, dismiss the suit and award them costs.

The complainant also enlisted legislative support to bolster its case. On January 1, 1850 Pennsylvania's Governor William F. Johnston informed the legislature of the Wheeling Bridge case.[99] According to Governor Johnston "obstruction" by the bridge would "have a tendency to diminish the trade on our works [Pennsylvania Main Line]; to affect the eastern market, and materially to decrease the revenue of the State."[100] Such results, Johnston warned, demanded "speedy and energetic action" by the legislature in order to remove "the evil."[101]

While Johnston's address implied practical concern for maintaining the return on state investments in order to service the public debt, the Senate committee to whom the

Wheeling Bridge suit portion of the governor's message was referred chose to couch their report in terms of state honor and the immutable right of free navigation.[102] Senator George Darsie, who presented the select committee report, identified the volume of freight and passengers transported on the Pennsylvania works and that segment also carried by the Pittsburgh and Cincinnati packets.[103] After describing the dimensions of the Wheeling bridge and the Pittsburgh and Cincinnati packets and the facts regarding the obstruction of the Messenger and Hibernia, he declared that the commercial prosperity of Pennsylvania, which had been built on free navigation of the Ohio River, was now threatened by the Wheeling bridge.[104]

According to the committee free navigation consisted of both free use of the channel and free headway. "To compel the navigator to change [the construction of vessels] . . . is to destroy freedom of navigation."[105] The Wheeling bridge and its potential to carry the B. and O. Railroad was not only a threat in itself, but also represented the threats of additional bridges.[106] "The mere will and speculative purposes of bridge companies, must not be permitted to ruin a public highway hitherto regarded as of more value to commerce, than any other in the world, and to reach which Pennsylvania has expended so many millions of dollars."[107] To impose on Pennsylvania commerce "the burthen of danger and delay at the Wheeling bridge, or to the hazard and expense of transhipment [sic], and an

advantage is given to her rival [the City of Baltimore by means of the B. and O. Railroad] with which Pennsylvania cannot compete."[108]

The committee report explained that to "vindicate" free navigation and to remove the obstruction by which it had been "violated" the Pennsylvania Attorney General had instituted proceedings in name of the state before the U.S. Supreme Court.[109] The committee report concluded by favoring joint house-senate resolutions that the state defend its rights by the proceedings to abate a nuisance pending in the Court against the Wheeling and Belmont Bridge Company, and if such proceedings failed, that the Governor be authorized to cause abatement.[110]

While the Virginia and Pennsylvania legislatures backed the actions of the principals in the case, in Washington the national legislature spent the 1850 session agonizing over matters related to slavery, state sovereignty and the organization and admission of new territories.[111] In late January, shortly before he introduced the eight resolutions which became the Compromise of 1850, Henry Clay asked Daniel Webster's support for the compromise measures.[112] On February 5 Clay launched the full-scale debate on the measures and on the 14th Webster indicated that he would call on southern gentlemen "to state distinctly" what they considered to be the "series of aggressions" which they said the North had committed against the South.[113]

During the next two weeks Webster and Clay arranged dinners with disaffected northerners and southerners, while the speeches of John C. Calhoun and Webster scheduled for the the first week in March began to attract public attention.[114] On the 24th Webster admitted to his son that he was "nearly broken down with labor and anxiety" over "the present emergency," and that he did not know what "weapons" would "beat down the Northern and Southern follies."[115] As the Senate prepared to hear the warnings of Calhoun, the concessions of Webster and the pleas for conciliation of Clay, in the Supreme Court chamber the justices prepared to hear their last case before the spring recess.

Justice Peter V. Daniel wrote his daughter on February 23rd that arguments in the Wheeling Bridge case would begin on Monday the 25th, "but from the magnitude of the subject involved" the Court had released counsel from the usual two hour restriction.[116] In addition to presenting questions on the right to navigate the Ohio River and the right to cross it, the Wheeling Bridge case also raised the timely issue of state sovereignty then under discussion with regard to slavery in the legislative halls. While northerners and southerners divided on the question in the Senate and House, in the Supreme Court chamber attorneys for a northern state contended that the exclusive power to regulate navigation (using the commerce clause of the Constitution) resided in Congress, while attorneys for a corporation in Virginia

urged the southern argument that the states had reserved sovereign power regarding matters within their boundaries.

Edwin M. Stanton presented the facts for the complainant. His argument discussed the material allegations of the suit (the highway, the obstruction and the injury), and briefly considered the remedy.[117] By compact the states had designated the Ohio River as a common highway, and the Constitution had given Congress the power to regulate commerce on it. Attempts to convince Congress to build a bridge at Wheeling had failed. The Wheeling and Belmont Bridge Company had proceeded to build a bridge which violated the intentions of both Congress and the Virginia legislature which had chartered the company. Stanton then used diagrams of the bridge and boats, charts of Ohio River flood levels, and extensive reference to and quotations from the depositions taken in the fall of 1849 to show that the suspension bridge obstructed river traffic. Describing the bridge as "the miserable expedient of a South American Indian," he argued that it provided clearance for the largest steamboats then navigating the river only under a small portion of the total span and then only when the water level was low.[118]

By restricting the size of boats which could pass under it, the Wheeling bridge "forbids all advance or improvement in the size and dimensions of vessels, but forces them back ten years."[119] Navigators would have to conform to the "condition" of remodelling their chimneys and to the "duty"

to lower their chimneys to pass under the bridge, which would add trouble and expense to their trips. These additional expenses applied only to river traffic going to ports above Wheeling and therefore represented a special injury to Pennsylvania.[120]

To disprove Pennsylvania's case, the bridge company had to show that high chimneys were unnecessary, and according to Stanton they had failed to do so. The Philadelphia witnesses called by the bridge company had been "profoundly ignorant" of conditions on western waters and they had not demonstrated that artificial draft was as feasible as draft induced naturally through tall chimneys.[121] Stanton continued that Pennsylvania had proven obstruction, and through the testimony of the state toll collector and Pittsburgh businessmen had shown damage to the state's revenues and business. Pennsylvania had brought suit "only as an individual for the special injury suffered by herself."[122] With the facts proven and the remedy of abatement of nuisance available, the Court should grant Pennsylvania's request.

Robert J. Walker continued the Pennsylvania argument with a diatribe against bridges in general and the Wheeling bridge in particular. According to Walker Virginia's "true" interest accorded with Pennsylvania's, because if the Wheeling bridge was not abated, similar bridges at Cincinnati and other points on the river would block river traffic to and from Virginia's important James River and

Kanawha improvement.[123] Walker declared that steam navigation, then achieving "its greatest triumphs" in the West, would be "arrested" when it met a bridge.[124] "Let steam ferries, like those at New York and Philadelphia and other points be introduced."[125] According to Walker [s]uspension bridges are an immense waste of national capital, costing eight times as much as a first rate steam ferry boat."[126] He implored the Court to interpose, and leave the Ohio River free of bridges.

Walker stated that the Wheeling bridge, by obstructing steamboat traffic, endangered the lives and property of citizens. The 1838 steamboat inspection law required captains to open boiler safety valves to lower steam pressure when boats stopped because "explosions on western waters rarely occur when the boat is under full headway, but only when there is a stop in the motion or headway of the boats."[127] "[H]ow clearly will these bridges," Walker declared, "erected every few miles distant on the Ohio, conflict with the humane and life-preserving policy of this law."[128] Walker described in lurid detail what would result if bridges were allowed to remain. Wrecks would "strew the shores of the Ohio" which would be "crimsoned by the blood of the victims."[129] Passersby would hear "the groans of the wounded" and "the shrieks of the dying" and would see "the mangled limbs of the victims" beside "rescued survivors torn from the last embrace of wives and children".[130]

For his legal argument Walker relied on two Supreme Court decisions and one federal circuit court case. Quoting from sections of each justice's opinion (including dissent) in the Passenger Cases of the previous year, Walker argued the Court had found that state acts which "practically operate as regulations of commerce," whether intended to or not, were unconstitutional.[131] Walker used the decision in Gibbons v. Ogden to show that New York's grant of exclusive steam navigation was "repugnant to that clause of the Constitution of the United [States] which authorizes Congress to regulate commerce."[132] Only Congress had the right to regulate commerce, and since the Wheeling bridge by obstructing commerce acted as a form of regulation, the state charter was invalid.

U.S. v. New Bedford Bridge bore most directly on the issues in the case before the Court.[133] The indictment brought against the bridge company by the United States District Attorney alleged that the New Bedford Bridge over the Acushnet River at New Bedford, Connecticut obstructed commerce between the states and with foreign countries. According to Walker Justice Levi Woodbury had found that "Congress has conferred no power on the U.S. Courts to punish obstructions in navigable streams as crimes."[134] To Walker, Woodbury's decision "settle[d] the question" of proceeding by way of indictment or information against this bridge [Wheeling and Belmont Bridge] as a nuisance in the U.S. Court of Virginia."[135] He continued "for in this very

case" Pennsylvania had applied to the executive branch to proceed by a bill in the name of the United States, "and it was declined" by Attorney General Reverdy Johnson "on the ground of a want of jurisdiction."[136]

Pennsylvania had gone ahead with the suit in equity for an injunction to abate the nuisance because the state had suffered special and irremediable injury. Concluding his legal argument, Walker assured the Court that "the Attorney General, for whose talents and worth I have the greatest respect, was perfectly right in the view that there was no jurisdiction in the name of the United States, and hence the he could, with entire propriety, appear and argue the case for the opposite party."[137]

Writing to his wife on Thursday, February 28, 1850 defense attorney Stuart explained that Walker's argument that day had lasted three hours, "and although he exerted himself to the utmost--I did not feel that we were much hurt, and my confidence in our success is by no means abated--."[138] The following evening he wrote his wife that Wheeling citizens at the hearing "profess themselves to have been very much delighted with my argument of their case." He continued "if any other litigation should therefore grow out of the case, which is not improbable, I may probably have a hand in it."[139]

Johnson's and Stuart's arguments do not survive, but a later decision includes their 1850 brief.[140] According to this brief their argument closely followed the bridge

company answer to Pennsylvania's original bill. In 1850 Johnson and Stuart again maintained that Pennsylvania had merely shown a "remote, contingent and speculative" injury to the State Works which would not meet the special criteria of "irreparable damage" needed to prove private nuisance in a court of equity.[141] According to the defense failure to show the "direct and immediate interest" of Pennsylvania "in her corporate capacity" also removed the dispute from the original jurisdiction of the Supreme Court.[142]

Johnson's and Stuart's arguments probably relied on the fact that the Ohio River flowed through Virginia, and that the state had never ceded the river by the Northwest Ordinance. Therefore the state's ability to charter companies to bridge the river was an internal matter analogous to Pennsylvania's charters for bridges over the Monongahela and Alleghany rivers. Even if the Court determined that the Ohio River was a common highway subject to the federal commerce power, Congress so far had not regulated the heights of bridges over navigable rivers, and in the absence of a federal law, the states could act. Virginia had done so by chartering the bridge company. According to the explanatory and amendatory act the bridge as built did not violate the charter.

Under the heading of questions "of a political character" defense counsel declared in their 1850 brief that Virginia had granted the Wheeling and Belmont Bridge Company charter "to advance and facilitate commerce between the

states and the safe, speedy and certain transmission of the mails."[143] A charter for these "great public objects," according to Johnson and Stuart, "commend[ed] itself to the favorable regard of the government."[144] The bridge company lawyers reminded the Court that "the privilege of navigating the river is not paramount to, but only co-equal with, the privilege of crossing it," and that the duty of the government was "quite as imperative" to "protect and regulate" the trade across rivers as the trade up and down them.[145]

In his argument on behalf of Pennsylvania Walker stated that the defense had "warned the Court of the danger of exciting the jealousy of the States in regard to the jurisdiction of this Court."[146] According to Walker the defense had asked that the Court "refuse redress in cases like this, where a sovereign State is a party" and to try such cases in the federal courts, by a bill in equity "only in the name of the United States, as an injury only against the alleged sovereignty of the Government."[147] The bridge counsel probably proposed this remedy because such a suit had already been rejected by the present administration (only one year into its four-year term), and therefore offered no immediate threat to the bridge. Suggesting that a decision favoring Pennsylvania might excite state jealousy of the Court's jurisdiction served to remind justices who believed Congress had exclusive commerce power that an overzealous protection of "exclusiveness" might lead to

retaliation by members of Congress favoring state sovereignty. In a similar instance Congress had reacted negatively to the Court's decision in Chisholm v. Georgia (1793) by proposing the Eleventh Amendment.[148]

To try the case in federal courts in the name of the United States represented a compromise between the extremes of a decision entitling Pennsylvania to the abatement of the bridge and a decision upholding the Virginia charter and recognizing state sovereignty in similar matters. The former would confirm the exclusive commerce power of Congress; the latter, the concurrent commerce powers of the state and federal legislatures. This compromise also left discretion to the executive branch without foreclosing congressional action. Such a solution allowed the Court to avoid an outright decision and appeared to give Pennsylvania an avenue of redress through the lower federal courts. Given the highly-charged political climates of the neighboring chambers of the Capitol also embroiled in matters of state sovereignty, Webster and Clay probably welcomed Johnson's and Stuart's compromise which may have been the product of consultation between them.[149]

Another strategy available to the Court which avoided making an unpopular decision was to relegate the issues in Pennsylvania v. Wheeling Bridge to the political arena. Taney's opinion the previous year in Luther v. Borden had identified certain public policy matters as "political questions" outside the scope of the Court.[150] Using this

departmental theory--that political questions belonged before the political branches--could also relieve the Court of the current dilemma.[151] But choosing to define the Pennsylvania-Virginia dispute as "political" would add the nature of state sovereignty with regard to the commerce power to the already critical House and Senate debates on the nature of state sovereignty with regard to slavery. Apparently neither the Court nor the defense found this strategy viable.

Nine justices composed the Supreme Court which heard Pennsylvania v. Wheeling and Belmont Bridge Company in late February, 1850. All of them had also heard the Passenger Cases decided the previous year.[152] These cases involved the validity of state statutes imposing head taxes on alien passengers arriving at New York and Massachusetts ports, and counsel argued whether the commerce power was exclusively federal or whether the states had concurrent powers, and if the latter, what distinguished them.[153] The justices split five to four and wrote eight opinions.

In the Passenger Cases Justice John McLean, among the majority, reiterated his License Cases opinion (in dissent) and affirmed his belief in the exclusive power of Congress to regulate commerce.[154] Justice John Catron, who two years before in the License Cases had upheld concurrent state commerce power for internal police purposes so long as the effect on interstate commerce was incidental, found the state regulations under review in the Passenger Cases

unconstitutional because they conflicted with specific Acts of Congress. Justice James M. Wayne, who had found the federal commerce power exclusive in the License Cases, agreed with Catron in the Passenger Cases that the state statutes conflicted with specific federal laws. Justices John McKinley and Robert C. Grier agreed with Catron and McLean in the Passenger Cases and had agreed with McLean in License Cases.

Chief Justice Taney, dissenting in the Passenger Cases, found the state statutes dealing with undesirable aliens a valid exercise of the state's sovereign power.[155] He had also found with Catron for concurrent state commerce powers in the License Cases. Justice Samuel Nelson concurred with Taney. Justice Woodbury described the New York and Massachusetts laws (as well as the earlier license laws) as "legislation for the internal policy of a State," and therefore a valid use of state power.[156] Justice Peter V. Daniel warned of the dangers of expanding the scope of federal power and found the state statutes constitutional.

In Pennsylvania v. Wheeling Bridge Walker's argument for the complainant tried to take advantage of this diversity by quoting favorable portions of each opinion (including dissent) with the dual purpose of appealing to precedent and to each justice's personal pride of judicial craftsmanship. Pennsylvania v. Wheeling Bridge was decided against this backdrop of bewildering seriatim opinions on the constitutionality of state laws relating to commerce

between the states, and while Congress concurrently debated what Daniel Webster called the crisis over "the preservation of the Union" regarding state sovereignty and slavery.[157]

By April the Pittsburgh Journal and the Wheeling Gazette were reporting that the justices had conferred on three evenings.[158] From this the editors inferred "that there are differences of opinion, but whether they relate to the main question, or merely to minor points" was unknown.[159]

In addition to the diversity over commerce clause cases heard by the whole court, three justices had also decided or participated in decisions dealing specifically with the powers of states to charter companies whose activities might obstruct waterways. In U.S. v. New Bedford Bridge Justice Woodbury had found that the 800 yard embankment between the port of New Bedford and the sea relieved by a single draw span bridge did not violate its Massachusetts charter.[160] The charter itself fell "within the scope of State authority to punish or permit, till Congress legislate . . . in such a way as to come in collision with the action of the State."[161]

Justice Nelson had participated in a similar quo warranto case while a justice of the New York Supreme Court.[162] In The People v. the Rensselaer and Saratoga Rail Road Company (1836) Nelson, as a member of the court, had vindicated the legislature's creation of the corporation and found that the railroad's erection of a draw bridge at Troy

"facilitate[d] internal communications and intercourse--both peculiar objects of state legislation."[163]

Justice McLean on circuit heard Spooner v. McConnell (1838), a request for an junction to abate the public nuisance caused by state improvements to the Maumee River (a dam with a lock), which "would delay and therefore obstruct the navigation."[164] Since the complainant "failed to show that measure of injury which calls for its [the court's] special interposition by injunction," the circuit court denied the request.[165]

Based on past judgments, Pennsylvania v. Wheeling Bridge (1850) should have presented an array of opinions.[166] Instead the justices divided eight to one.[167] Justice Daniel refused jurisdiction on the grounds that Pennsylvania had failed to show the state's interest and that such a matter was not properly before a court of equity, but should be determined by a court of law.[168] Justice Nelson, speaking for the remainder of the Court, issued an interlocutory order of less than a page which referred the cause to Reuben Hyde Walworth.[169] Walworth was to serve as commissioner of the Court by taking proofs on two questions: whether the bridge was an obstruction to navigation of the Ohio River, and if it was an obstruction, what changes could be made that would allow passage of river traffic and retention of the bridge. The Court ignored the 360 printed pages of depositions.[170]

Although the political climate offers a partial explanation of the postponement of a final decision in the Wheeling Bridge case, the strategy of referring the cause to Walworth, as opposed to a simple postponement, requires additional consideration. The key to the referral lies in the Chief Justice's opinions in the 1850 and 1852 decisions. In 1850 Taney joined the majority in the interlocutory order. In 1852 he joined Justice Daniel in dissent on the grounds that the question was political in nature.[171] If he had had reason to dissent in 1850, he clearly could have joined with Daniel then.[172] That he changed his mind in the interim suggests that Walworth's report of the facts decided the matter for the Chief Justice, and that Taney participated in the 1850 order to secure additional information. Walworth's report proved to Taney what he had not known before--that the suspension bridge did not violate its charter.[173] Woodbury and Nelson, whose earlier opinions on circuit and in the New York court had favored state authorization to construct draw bridges over navigable waters, apparently shared Taney's doubts about whether the Wheeling suspension bridge obstructed the Ohio River and also joined in the interlocutory order.

The Court's referral of the matter to Commissioner Walworth ended the first phase of the Wheeling Bridge case. Pennsylvania had claimed that the Wheeling bridge obstructed Ohio River steamboat traffic and consequently injured the state's toll revenues on the Main Line. The bridge company

counterclaimed the right of the public to cross the river and Pennsylvania's failure to prove irremediable injury. The Court chose to disregard the factual presentations of the parties and to collect its own evidence. In referring the case the Court accepted the Wheeling and Belmont Bridge Company position to the extent that they did not immediately order the abatement of the bridge, but the justices also allowed Pennsylvania standing as a party. They recognized that the issues raised in the Wheeling Bridge case outweighed concern for procedural niceties. In the rapid western development of a continental nation, determining how conflicting transportation systems would adapt to each other was more important than whether a particular complainant had proved sufficient injury to give the Supreme Court jurisdiction.

Notes

1. Robert C. Grier, The State of Pennsylvania vs. the Wheeling and Belmont Bridge Company (Philadelphia: n.p., 1849), 18.

2. Robert M. Riddle, editor of the Pittsburgh Commercial Journal was Charles Shaler's brother-in-law. A well-known Whig politician, Riddle was elected Mayor of Pittsburgh in 1853. James Baker to Charles Ellet, Jr., January 4, 1853, Charles Ellet, Jr. Papers, Engineering Library, University of Michigan (hereafter cited as Ellet MSS) and Michael Fitzgibbon Holt, Forging a Majority: The Formation of the Republican Party in Pittsburgh, 1848-1860 (New Haven, CT: Yale University Press, 1969). Throughout the period of the bridge case, the Commerical Journal strongly supported Pennsylvania's case.

   James E. Wharton and Oliver I. Taylor each edited the Wheeling Gazette during the period of the bridge

cases. Taylor also edited the Wheeling Intelligencer (both papers were Whig). Wharton began the Gazette's support of the Wheeling and Belmont Bridge Company by running an article on suspension bridges in early 1847 and following it up with editorials favoring stock subscription in the bridge company. In 1851 Wharton as President signed the petition of the Wheeling Board of Trade asking the Virginia legislature to support the bridge company in the suit. Taylor prepared the 1851 city directory in which he provided an extended analysis of the suit. He described the reasoning of Commissioner Walworth as "exceedingly arbitrary," operating from a "pre-conceived opinion that the bridge is an obstruction." According to Taylor the proposal of the commissioner to remedy the alleged obstruction was "utterly inadequate to provide for probable or possible contingencies." Throughout the suits the Gazette and the Intelligencer supported the bridge company. Delf Norona, (ed.), West Virginia Imprints, 1790-1863: A Checklist of Books, Newspapers, Periodicals and Broadsides (Moundsville, WV: West Virginia Library Association, 1958), entries for Wheeling Gazette and Wheeling Intelligencer; "Memorial of the Board of Trade of the City of Wheeling," in petitions to the Virginia General Assembly, [from internal evidence after May, 1851], Virginia State Library (hereafter cited as VSL); and Oliver I. Taylor, Directory of the City of Wheeling and Ohio County (Wheeling, VA: Daily Gazette, 1851), 16-20.

3. Pittsburgh Commerical Journal, June 27, 1849.

4. Wheeling Gazette, July 4, 1849.

5. Ibid.

6. Wheeling Gazette, July 9, 1849.

7. Wheeling Gazette, July 13, 1849.

8. Ibid.

9. Wheeling Gazette, July 9, 1849.

10. Ibid.

11. Beaver, Pennsylvania Argus, quoted in the Wheeling Gazette, July 27, 1849.

12. Parkersburg, Virginia Gazette, quoted in the Wheeling Gazette, August 1, 1849.

13. Kanawha, Virginia Republican, quoted in the Wheeling Gazette, August 10, 1849.

14. Washington, Pennsylvania Examiner, quoted in the Wheeling Gazette, August 14, 1849.

15. Ibid.

16. Washington, D.C. National Intelligencer, quoted in the Wheeling Gazette, July 25, 1849.

17. Ibid.

18. Ibid.

19. Philadelphia North American, quoted in the Wheeling Gazette, July 31, 1849.

20. Ibid.

21. Ibid.

22. Cincinnati Gazette, July 20, 1849.

23. Ibid.

24. For example see the American Railroad Journal 22 (1849): 626.

25. Pittsburgh Commercial Journal quoted in the Wheeling Gazette, August 24, 1849.

26. Ibid.

27. Ibid.

28. Ibid.

29. Wheeling Gazette, August 28, 1849.

30. Ibid.

31. From "Statement of the depth of water in the channel of the Ohio River at Wheeling, Virginia . . . , March 6, 1845 to November 26, 1849," Record: State of Pennsylvania vs. The Wheeling and Belmont Bridge Company, William Ottersan and George Croft ([Washington, DC]: Gideon, [1850]), 402-403. Hereafter cited as Record.

32. Wheeling Gazette, October 4 and 20, 1849.

33. Pittsburgh Commercial Journal, November 10, 1849.

34. Pittsburgh Dispatch, November 10, 1849.

35. Wheeling Gazette, November 14, 1849.

36. Ibid. See also "C.W. Batchelor, 'My Life and Times,'" S and D Reflector 3 (1966): 10, and testimony of John Klinefelter, 173-175, Record.

37. Wheeling Gazette, November 14 and 20, 1849. On the same night the Messenger, another Pittsburgh and Cincinnati packet, had been unable to get under the bridge until the officers cut off seven and one-half feet of the boat's chimneys.

38. Wheeling Gazette, November 17, 1849.

39. Cincinnati Gazette, November 21, 1849, and National Intelligencer, November 21, 1849.

40. "Answer of the Wheeling and Belmont Bridge Company to the Amended and Supplemental Bills," filed November 7, 1849, Record, 39-46.

41. Ibid. 40.

42. Ibid. 44.

43. Ibid.

44. Ibid.

45. Ibid. 44-45.

46. Ibid. 43. The "other improvements now finished or in progress" was a veiled reference to the completion of the B. and O. Railroad to Wheeling.

47. Ibid. 46.

48. Ibid.

49. Ibid.

50. Ibid.

51. Ibid. The bridge company's answer to the amendment and supplemental bill of Pennsylvania had changed from the defensive tone of Cadwalader's initial response for the bridge company, to a new offensive stance. The answer also relied on common law principles, not a statutory defense using the bridge company's charter. On October 23, 1849 Alexander H.H. Stuart had agreed to represent the bridge company and he signed the answer to the amendment and supplemental bill. See Alexander H.H. Stuart to Charles Ellet, Jr., October 23, 1849, Ellet MSS. John Cadwalader no longer appears on behalf of

the bridge company. The shift in strategy probably marks the shift in lawyers.

52. Record, 402-403.

53. Testimony of John Klinefelter, Record, 173-175.

54. "Second Supplemental Bill of Pennsylvania," filed November 20, 1849, Record, 48-49.

55. Ibid. 49.

56. Ibid.

57. Ibid. 49-50.

58. Ibid. 50.

59. Ibid.

60. Record, 61-422.

61. Testimony of John Klinefelter, Record, 173-175.

62. Ibid.

63. Testimony of Thomas S. Clarke, Record, 255-261, and testimony of William Bingham, Record, 261-262.

64. "Remarks upon Mr. Roebling's 'Plan and Report for a Wire Suspension Bridge, Proposed to be Erected over the Ohio River, Cincinnati,'" in Record, 109-122, and accompanying testimony of Erasmus Gest, Record, 107-109.

65. Testimony of Levi G. Clover, Pennsylvania Collector of the Revenue for the State Works at Pittsburgh, Record, 251.

66. Ibid.

67. Testimony of George Darsie, Record, 274. On January 27, 1852 the Pittsburgh and Cincinnati Packet Line authorized the payment of $70.00 to George Darsie and Benton Kerr for their expenses "to and at Harrisburgh to oppose the attempt making in the Legislature to withdraw the suit against the Wheeling Bridge." Pittsburgh and Cincinnati Packet Line Minute Book, Historical Society of Western Pennsylvania (hereafter cited as P. and C. Minute Book, HSWP).

68. Testimony of Thomas Taylor, Record, 360.

69. Testimony of Israel Dickinson, Record, 366-393.

70. Record, 378.

71. Ibid.

72. Testimony of William Dillon, Record, 416.

73. Pennsylvania presented depositions from forty-six experts regarding bridge and steamboat technology. The bridge company presented depositions from twenty-five such experts.

74. Pennsylvania attorneys asked bridge company deponents: "Are you a stockholder in the Wheeling bridge, either in your own right, or in that of any firm of which you are a member? Are you in your own right, or otherwise, a stockholder in either of the Wheeling banks? Are you a resident and taxable inhabitant of the city of Wheeling, or do you own property therein? Does the city of Wheeling own stock in the Bridge Company; and if so, what is the amount of said stock?" Record, 361, 380, 405, 407, 410, 414 and 415.

75. Of the deponents called by Pennsylvania who were not identified as operating officers of the Pittsburgh and Cincinnati packets, I have identified seven (Gray, Clarke, Bingham, Black, Darsie, Morehead and Holmes) as owning interests in one or more of the boats or being paid fees to represent the packet line. See Frederick Way, Jr., Way's Packet Directory, 1848-1983 (Athens, OH: Ohio University Press, 1983), entries for each packet; and P. and C. Minute Book, HSWP; and testimony of Samuel Dean, Record, 84.

76. Cornelius Darragh to William Thomas Carroll, Clerk of the U.S. Supreme Court, August 1, 1849; Edwin M. Stanton to William Thomas Carroll, October 6, 1849; and Edward Fitzhugh to William Thomas Carroll, November 7, 1849 in U.S. Supreme Court, Pennsylvania v. Wheeling and Belmont Bridge Company, Record Group 267, National Archives (hereafter cited as Pa. v. WBBC, National Archives).

77. Alexander H.H. Stuart to Charles Ellet, Jr., October 23, 1849, Ellet MSS.

78. Edward Fitzhugh to William Thomas Carroll, November 10, 1849, Pa. v. WBBC, National Archives.

79. Record 63, 142, 158, 221, 132, 306, 358. First names of attorneys were generally not given in Record.

80. The Wheeling Gazette of January 15, 1850 reprinted in its entirety David Holmes et al. owner of the steamboat

"Hibernia" v. Morgan Nelson et al. The Court quashed the summons on the ground that Nelson at the time of service represented a party (the bridge company) in a suit being heard in Pennsylvania. Because the law of the state required his attendance to represent his clients in one action, it granted a corresponding immunity in the other action.

81. Alexander H.H. Stuart to Frances Stuart, December 8, 1849, Stuart Family Papers, Virginia Historical Society (hereafter Stuart MSS, VHS).

82. "Deposition of Edwin M. Stanton," August 16, 1849, Record, 38-39. On March 15, 1851 Stanton wrote Messrs. Johnson of Philadelphia that he proposed "to prepare for publication a full report of the Wheeling Bridge Case." He suggested that he was the best candidate for the task "having myself originally advised the proceedings, and had charge of it in every stage." Stanton to Messrs. Johnson, March 15, 1851, Edwin M. Stanton Papers, Historical Society of Pennsylvania (herafter cited as Stanton MSS, HSP).

83. "C.W. Batchelor, My Life and Times," 10; and Wheeling Gazette, November 20, 1849 which describes the action of "the counsel of the Pittsburghers".

84. David Holmes et al. reprinted in the Wheeling Gazette January 15, 1850.

85. Pennsylvania v. Wheeling and Belmont Bridge Company 9 Howard 657.

86. Alexander H.H. Stuart to Frances Stuart, December 8, 1849, Stuart MSS, VHS.

87. P. and C. Minute Book, HSWP.

88. Record, 134, 154, 246 and 365. First names of attorneys were generally not given in Record.

89. "Memorial of the Wheeling and Belmont Bridge Company," December 6, 1849, in petitions to the Virginia General Assembly, Virginia State Library (hereafter cited as VSL).

90. Ibid.

91. Ibid.

92. Ibid.

93. Ibid.

94. Ibid.

95. Ibid.

96. "An act to amend the several acts incorporating the Wheeling and Belmont Bridge Company," passed January 11, 1850.

97. "Supplemental Answer of the Wheeling and Belmont Bridge Company to a Bill, Amended Bill, and First and Second Supplemental Bills," filed February 2, 1850, Record, 51-53.

98. Ibid. 52.

99. "Annual Message of the Governor," Pennsylvania Executive Documents for the Fiscal Year Ending 1849, 14.

100. Ibid.

101. Ibid.

102. Report of the Select Committee of the Senate of Pennsylvania in Relation to the Bridge across the Ohio River at Wheeling, Virginia (Harrisburg, PA: J.M.G. Lescure, Printer to the State, 1850), 3, 7.

103. According to the report $50 million in property and 300,000 passengers travelled along the Main Line to and from the Ohio River each year. The P. and C. packets transported an estimated 168,000 passengers and 80,000 tons of freight annually. Ibid. 3.

104. Ibid. 6.

105. Ibid. 8.

106. The proposed Cincinnati bridge and "similar projects" were mentioned. Ibid. 9.

107. Ibid.

108. Ibid.

109. Ibid. 10.

110. Ibid. 10. The Pennsylvania House amended the resolutions to include an appropriation of $2,000 to prosecute the suit. Signed by the Governor, February 19, 1850, Journal of the Senate, 1850, Harrisburg, PA, 353.

111. See summary of events leading to the Compromise of 1850

in David M. Potter, The Impending Crisis, 1848-1861, New American Nation Series, edited by Don E. Fehrenbacher (New York: Harper and Row, 1976), 90-120.

112. George Ticknor Curtis, Life of Daniel Webster, 2 vols. (New York: D. Appleton, and Co., 1870), 2:397-398.

113. Ibid. 399.

114. Alexander H. H. Stuart to Frances Stuart, "Thursday, 4-1/2 p.m." (from internal evidence February 28, 1850) and Alexander H.H. Stuart to Frances Stuart, "Friday evening, 3 o'clock" (from internal evidence March 1, 1850) Stuart MSS, VHS.

115. Richard N. Current, Daniel Webster and the Rise of National Conservatism (Boston: Little, Brown, 1955), 162.

116. Peter V. Daniel to Elizabeth Daniel, February 23, 1850, Daniel Family Papers, Virginia Historical Society (hereafter cited as Daniel MSS, VHS).

117. Although the Court stated that Cornelius Darragh also represented the state, no record of his argument survives. Since the arguments of Stanton and Walker account for the complainant's side of the case, Darragh may have been a silent participant in the hearing. 9 Howard 657.

118. Edwin M. Stanton, The Wheeling Bridge Case, Mr. Stanton's Argument [Washington, 1849], 5.

119. Ibid. 7.

120. Ibid. 9-10, 20.

121. Ibid. 10.

122. Ibid. 30.

123. Robert James Walker, Speech of the Hon. Robert J. Walker, Delivered March 1, 1850, in Favor of Pennsylvania, in the Case of the State of Pennsylvania vs. the Wheeling Bridge Company (Philadelphia: Published at the request of the Attorney General of the State, 1850), 3.

124. Ibid. 5.

125. Ibid. 6.

126. Ibid. 6.

127. Ibid. 21.

128. Ibid.

129. Ibid.

130. Ibid.

131. 7 Howard 283; also see Walker, Speech in Favor, 3-8. The quotation (Walker, Speech in Favor, 6) is from Justice Wayne's opinion 7 Howard 419.

132. 9 Wheaton 1. The quotation is from Gibbons v. Ogden quoted by Walker, Speech in Favor, 8.

133. 1 Wood. and Minot 401.

134. Walker, Speech in Favor, 14.

135. Ibid.

136. Ibid. 27-28.

137. Ibid. 28.

138. Alexander H.H. Stuart to Frances Stuart, "Thursday, 4-1/2 p.m." [February 28, 1850], Stuart MSS, VHS.

139. Alexander H.H. Stuart to Frances Stuart, "Friday evening, 3 o'clock" [March 1, 1850], Stuart MSS, VHS.

140. Wheeling Gazette, July 6, 1850; and Pennsylvania v. Wheeling and Belmont Bridge Company, 13 Howard 518, 544-547.

141. 13 Howard 545.

142. Ibid.

143. Ibid. 545, 546.

144. Ibid. 546.

145. Ibid.

146. Walker, Speech in Favor, 26.

147. Ibid.

148. The Eleventh Amendment limited the jurisdiction of the Supreme Court by eliminating its ability to hear suits "commenced or prosecuted against one of the United States by citizens of another state, or by citizens or subjects of any foreign state." Chisholm v. Georgia

(1793) 2 Dallas 419.

149. Johnson and Stuart attended a dinner given by Daniel Webster on February 28, and Stuart attended a dinner with Henry Clay on March 1, 1850. Alexander H.H. Stuart to Frances Stuart, "Thursday, 4-1/2 p.m." [February 28, 1850] and "Friday evening, 3 o'clock" [March 1, 1850], Stuart MSS, VHS.

150. Luther v. Borden (1849) 7 Howard 1.

151. Kermit L. Hall, The Supreme Court and Judicial Review in American History (Washington, DC: American Historical Association, 1985), 20.

152. 7 Howard 283.

153. The following two paragraphs are a brief summary of the discussion in Carl B. Swisher The Taney Period, 1836-18 64, vol. 5 of History of the Supreme Court (New York: Macmillan, 1974), 370-77, 382-91.

154. License Cases (1847) 5 Howard 504.

155. Swisher notes that Taney and other dissenting justices in the Passenger Cases did not generally use the term "police power" to refer to the states' statutory intentions. Since the Virginia statute for the Wheeling Bridge was clearly not an exercise of police power, the dissenting justices' reasoning in the Passenger Cases could be applied to the bridge case.

156. 7 Howard 523.

157. From Webster's March 7, 1850 speech, quoted in Current, 163.

158. Wheeling Gazette, April 18, 1850 quoting the Pittsburgh Commercial Journal.

159. Ibid.

160. 1 Wood. and Minot 401 (27 Fed. Cas. 91).

161. 1 Wood. and Minot 415.

162. People v. the Rensselaer and Saratoga Rail Road Company, 15 Wendell 113.

163. 15 Wendell 136.

164. 1 McLean 337, 352.

165. 1 McLean 361-362.

166. Justices Wayne and McKinley would have decided for the exclusive commerce power of Congress. Justices Daniel, Nelson, Woodbury and Taney would have decided either that the Court had no jurisdiction in the matter, or that the state had validly exercised its concurrent commerce power. Grier and McLean could have gone either way, depending on whether they believed Pennsylvania had proven injury. Catron could have gone either way, depending on whether he believed the Virginia charter violated the Northwest Ordinance.

167. Peter V. Daniel in a letter to his daughter on May 24, 1850 explained how difficult it was to maintain a quorum. "Indeed so great is the impatience of some of the Judges that there is great diffulty in keeping them at this time." One justice had already left and justices Woodbury and Nelson "talk of going early next week." Peter V. Daniel to Elizabeth Daniel, May 24, 1850, Peter V. Daniel Papers, Alderman Library, University of Virginia (hereafter cited as Daniel MSS, UVA). Nelson apparently remained in town (he wrote the opinion and order, dated May 29, 1850--see 11 Howard 528), but it remains unclear how many other justices--five, six or seven--joined in the majority opinion.

168. 9 Howard 659.

169. 9 Howard 657-8.

170. In Justice Nelson's summary of the case, he mentions (657) "[n]umerous depositions", but does not refer to them again. The interlocutory order to Walworth was to take "further" proofs, but at no point in the official proceedings are the early materials referred to again.

171. 12 Howard 518, 579, 593.

172. Joining with Daniel would have split the Court 7-2, not sufficiently noteworthy, even in an important year politically, to call such a decision into question.

173. Had Taney believed that Walworth's report showed that the bridge violated its charter (by obstructing navigation) he would have continued with the majority.

CHAPTER VIII
"A FOOT OR TWO CANNOT BE THE MEASURE OF THE RIGHTS OF STATES"

The Order of Reference to Reuben Hyde Walworth confirmed Justice Grier's earlier referral to the full Court: in neither instance had the complainant proved that the bridge by obstructing traffic on the Ohio River caused special injury to Pennsylvania. But by ordering a new hearing of the facts and keeping the focus of the referral narrow, the Court appeared to accept Pennsylvania's argument regarding jurisdiction. In June Edwin Stanton wrote that the referral "is satisfactory to us, and sustains the only point for which I felt any personal responsibility--the question of jurisdiction and regularity of proceeding. A question of fact only remains."[1] And the Court's interlocutory order, by extending the period of review, increased the chance of showing obstruction.

In the eighteen months between the Court's 1850 Order of Reference and the December, 1851 hearing of the bridge case, Commissioner Walworth took "such further proofs" as the parties to the suit produced.[2] Pennsylvania chose to limit the major portion of its proof to general principles of present and future steamboat operation, while the bridge company attempted to expand the scope of its evidence to include the public need for the bridge. As the complainant

and defendant adjusted their strategies, attitudes and events outside the narrow confines of the hearing room began to affect how the commissioner dealt with the information put at his disposal.

Even as the Court deliberated, a new spring boating season began. On February 16, 1850 the Wheeling Gazette announced that the new Pittsburgh and Cincinnati (P. and C.) Packet Buckeye State (with chimneys almost fourteen feet higher than its predecessor the Isaac Newton) and the Cincinnati would come downriver on their first trips the next day.[3] On March 4 the new P. and C. Packet Keystone State (with chimneys thirteen feet higher than its predecessor the Monongahela) began its maiden voyage.[4] On March 6 the Wheeling Gazette noted that the Keystone State had been "mismanaged so adroitly that her pipes came in contact with the Bridge, and were partially displaced from their fastenings."[5] On March 17 the P. and C. Packet New England #2 sank and was soon replaced in the line by the Cincinnati, the tallest boat on the upper river with chimneys almost twenty feet higher than those of the New England #2.[6] At the end of the month Stanton wrote Robert Walker that he had arranged for depositions to show that the bridge had already blocked the Keystone State, Buckeye State and Clipper #2.[7]

Evidence

By June 17, 1850 Walworth had accepted the Court's commission and awaited the arrival of printed pleadings and

proofs.[8] On July 15 and 16 the parties to the case, represented by Charles Shaler and Edwin Stanton for the complainant and Charles W. Russell for the defendants, met before the commissioner in Wheeling to determine how and where testimony would be taken.[9] Walworth heard the first witness on July 16.[10]

Deposition-taking in the fall of 1849 had occurred simultaneously at several points, different attorneys representing each party in each locale. In the 1850 hearing before the commissioner Stanton and Russell appeared for their clients throughout and proceeded from point to point with Walworth and his clerk. The resulting testimony presents a far more cogent record than the earlier exercise. However, careful comparison of the 1849 and 1850 testimony suggests that both parties changed their strategies significantly.[11]

In 1850 testimony for the complainant on the first point (that there were no obstructions to the Ohio-Mississippi rivers except the Wheeling bridge) expanded to cover not only the natural watercourse, but also potential changes to the Louisville and Portland Canal. Eight officers and six builders of boats which used the canal described it as a constraint on efficient boat design.[12] When asked how the anticipated enlargement of the canal locks and removal of the canal bridge would affect the design of new boats, they stated that future boats would be longer, taller and broader of beam. While new boats would

have to conform in length and breadth to the new lock dimensions, removal of the canal bridge would eliminate chimney height restrictions (and the need for adjustable chimneys). The Wheeling bridge represented the only exception to the unimpeded navigation of the Ohio and Mississippi rivers.

New testimony on the second point (that modification of the P. and C. packets' chimneys was unreasonable) complemented the discussion of future boat design. Both "scientific men" and men with practical experience of steamboating testified that tall chimneys worked best by providing increased draft for boiler fires, and chimneys had not yet reached an elevation of diminishing returns. Incomplete combustion in boats with shorter chimneys (producing less draft) increased both trip length and fuel consumption. Longer trips raised operating costs which boat operators passed on to the consumer. Devices which produced artificial draft (such as blowers and jets) were inefficient, undependable and caused accelerated corrosion of engine parts and chimneys.[13] Allowing the bridge to stand, and thereby requiring shorter or adjustable steamboat chimneys, placed an unreasonable burden immediately on the steamboat operator and ultimately on the public.

In the meantime, for the summer and fall of 1850, owners and officers of the tall P. and C. boats faced a dilemma. In order for the Court to consider abatement of the bridge as a nuisance, the complainant had to prove

obstruction. To prove obstruction, the bridge had to stop boats, but stoppages would lead to lost trips and lost income. On the other hand, shortening chimneys or lowering them to pass the bridge at Wheeling, while maintaining the flow of river traffic and consequent revenues, would defeat the complainant's cause, since the bridge would no longer obstruct boats.

The differences between testimony in 1849 and 1850 on point three (that boat obstruction caused trade and passengers to divert from Pittsburgh) reflected these concerns of the Pittsburgh and Cincinnati Packet Line. While testimony in 1849 had dealt with obstruction of the Hibernia #2 and Messenger #2 by the Wheeling suspension bridge, in 1850 testimony covered obstruction of two tall boats not belonging to the P. and C. line.[14] Thirteen P. and C. officers and owners, instead of discussing the actual detention of their packets, covered the generalities of the expense of adjustable chimney apparatus, the difficulties of operating the apparatus, the dangers and delays associated with passing under the bridge, the unreliable performances of blowers and jets and the added costs of running the boats.[15] In 1849 Pittsburgh and Cincinnati packet officers had stated that passengers and freight anticipating obstruction by the Wheeling bridge would divert from Pittsburgh to other cities. The 1850 evidence showed that P. and C. freight and passengers when diverted had chosen smaller Pittsburgh boats.[16]

The tenor of the complainant's evidence on point six (that the bridge should be built higher) shifted also. In 1849 seven civil engineers had offered ideal designs to span the Ohio River, using John A. Roebling's proposed Cincinnati suspension bridge as a point of departure. The resulting proposals ranged in height from 117 to 130 feet. In 1850 Pennsylvania called only two civil engineers, yet the complainant's stance had solidified: at the earlier hearing expert opinion called on the complainant's behalf differed on ideal bridge height; at the later hearing both engineers insisted on a clearance of 130 feet to provide an unobstructed waterway.[17]

In 1850 the complainant's attorneys consigned point five (that the bridge obstructed sea-going vessels built at Pittsburgh) to obscurity. The year before seven witnesses had described the Pittsburgh industry of building sea-going vessels. Only one of these witnesses appeared in 1850.[18] His testimony indicated that the ninety-two foot clearance of the Wheeling bridge necessitated bringing his new vessel downriver unmasted and completing construction below the Louisville and Portland Canal. Both parties treated this preference of downriver ports for masting and rigging vessels (caused by the bridges at Wheeling and over the canal) as an isolated incident.

In 1849 Pennsylvania had relied on the testimony of forwarding and commission merchants and state and federal officials to prove their fourth point (that the state's

Main Line canal and railroad system had suffered because the Wheeling bridge obstructed steamboat traffic). But the Order of Reference from the Court restricted the commissioner's charge to whether the bridge obstructed boats, and if so, how the bridge could be altered. In 1850 Pennsylvania's attorneys called only one Cincinnati merchant who estimated the amount of freight and number of passengers carried annually on the Pittsburgh and Cincinnati packets.[19]

Pennsylvania's fifty-two witnesses (including fourteen witnesses recalled from 1849) presented a picture of vibrant steamboat business on the Ohio River. Professors of civil engineering and chemistry demonstrated important theoretical considerations regarding steamboat design.[20] Steamboat engineers, engine-, chimney-, boiler- and boat-builders presented empirical knowledge of steamboat operation.

Pennsylvania's witnesses declared that requiring adjustable boat chimneys to accommodate the bridge was unsafe. In order to ensure safe passage downstream on high water, steamboat officers secured their boats to trees on the Wheeling bank and descended stern-first to assess how far to lower their chimneys. Both descending and the actual lowering of chimneys were dangerous, particularly at night and in bad weather.[21] Short chimneys also created dangers: sparks from them ignited decks, and their smoke obscured pilots' vision.

Pennsylvania's witnesses also asserted that Ohio River steamboats would continue to increase in size. Although

only the P. and C. boat owners and officers had complained of obstruction by the Wheeling Bridge, other boats with tall chimneys would suffer similar detention. The P. and C. line considered alteration of their chimneys in order to continue to conduct their business unreasonable. Already boats of 700 to 900 tons operated on the Mississippi River and would operate on the Ohio River when the federal government enlarged the Louisville and Portland Canal.[22] Soon only the Wheeling bridge would obstruct further advances in the size of western steamboats.[23]

In general Pennsylvania restricted its presentation to the commissioner to the two questions referred, but managed to expand those questions temporally to include the potential effects of the bridge on future steamboat operation. The bridge company, in contrast, tried to broaden its approach to include the general needs of the public for a river crossing.

Early in the 1850 hearing the bridge company attorney tried to enter evidence that land traffic was obstructed without the bridge, but the complainant immediately objected to the information as irrelevant. Walworth agreed; the Court had not asked him "to decide as to the relative rights of persons crossing the river and those engaged in navigating it, but merely whether the bridge as now constructed . . . obstruct[ed] the free navigation of the river."[24]

The defense responded that the Court could have decided the case upon the admissions and answers already presented. Since the justices had chosen to refer the case instead of decide it, concern for the conflicting right of crossing the river must have been the basis for the order. The defense contended that the matter before the commissioner was whether the bridge constituted "an obstruction of the free navigation," or only a limitation upon the right of navigation "as ought reasonably to be conceded to the right of crossing."[25] Therefore the commissioner should balance the relative inconveniences to navigation and land travel.[26] Walworth rejected the argument, stating that his charge had not included an evaluation of the "greater good to the community."[27]

Denied the ability to present evidence on their third point, the Wheeling bridge attorney concentrated on point one (that the bridge did not obstruct steamboats). The year before defense witnesses had shown that boats passing through the Louisville and Portland Canal routinely used adjustable or short chimneys. Officers and engineers had stated that it was "perfectly practicable to lower the chimney of a steamboat of any size, without danger or detention to the boat."[28] Boat-builders had indicated that artificial draft effectively compensated for natural draft lost by shortening chimneys.

In 1850 the bridge company attorney expanded the testimony on this point to include twenty men engaged in

boat-building, eight steamboat officers and two steamboat owners. Builders and investors asserted that western steamboat captains only desired tall chimneys "to improve the looks of the boat[s]."[29] As more boatbuilders adopted methods of artificial draft, they would discontinue the "present fashion of putting very high chimneys" on boats.[30] And experience showed that rearranging the furnace also improved draft.

Scientific theory reinforced this conclusion. Professor William H.C. Bartlett of West Point applied Peclet's formula to the dimensions of the Buckeye State and Clipper #2 (holding constant for work performed and attempting to achieve perfect fuel combustion) and found that neither boat had adequately-sized grate surfaces or aggregate sectional flue areas.[31] According to Bartlett current operation of the Buckeye State and Clipper #2 caused "excessive waste of fuel" which involved "unnecessary expense" for both procurement and carriage.[32] Enlarging the grate surfaces, flue areas and chimney diameters of these boats would increase dramatically the efficiency of their engines.[33] By comparison Bartlett estimated that to approach perfect combustion on the Clipper #2, by means of chimney height alone, new chimneys would have to reach 191.3 feet above the boilers.[34] To rely on chimney extension alone to improve steamboat operation flew in the face of current science.

Evidence on the second point (that raising or removing the bridge was unreasonable) expanded only slightly in 1850. Israel Dickinson, who had served as clerk of the works on the Wheeling bridge, had testified at great length in 1849 regarding bridge alterations, but he provided only factual information on boat dimensions and coal measurements in 1850.[35] Jonathan Knight, whom Walworth had refused to hear on the issue of relative rights of land traffic, found his testimony restricted to professional engineering matters. According to Knight raising the Wheeling bridge to 100 feet above high water was not only "impracticable" for "ordinary conveyances," but also unrealistic since the excessive cost of the alterations would prevent a reasonable return on invested capital.[36] Changing only the grade of the bridge, although reducing the cost of alteration, would create problems of adequate traction. Reverting to a draw bridge on piers would endanger both steamboats trying to negotiate the draw and rafts, flats and coal boats propelled by current trying to avoid breakup on the piers.

Charles M. Warren, another civil engineer called to testify, prophesied that passengers and freight would soon leave the river for the railroads currently under construction in the mid-West.[37] Both Warren and Knight concluded that removing or raising the bridge was unreasonable, on the one hand because other kinds of bridges represented dangers to other transporters, and on the other

hand because steamboats would not long continue as the pre-eminent form of transportation.

The evidence presented by the thirty-eight defense witnesses (only four of whom had been recalled from 1849) concentrated heavily on Ohio River steamboat operation and potential boat modifications. Eight bridge company witnesses engaged in engine building or steamboating at New York also offered suggestions.[38] They showed that steamboats using low chimneys and artificial draft worked well on eastern rivers. Other witnesses testified that on the Ohio River the standard operating procedure of lowering chimneys on passing through the L. and P. Canal had proven safe and efficient. Stationary tall chimneys were not the necessity claimed by P. and C. Packet Line owners and officers.

The major points of contention in the testimony presented by the complainant and the defendants involved whether the bridge blocked existing steamboat traffic, and whether the bridge would block future Ohio Valley trade. The first contention hinged on what constituted reasonable adaptation of steamboats; the second turned on both whether trade was increasing, and whether the public would prefer alternative conveyances.

Attorneys for the bridge company in both 1849 and 1850 emphasized that the Wheeling bridge did not block steamboat traffic on the Ohio River. Their witnesses declared that adjustable chimneys were the norm on large Ohio River boats,

and that since these boats passed under the bridge (even on high stages of water), the bridge did not obstruct steamboat traffic, but merely blocked the P. and C. boats whose owners had intentionally refused to comply with the typical practice on western waters. Pennsylvania witnesses in 1849 had stated that adjustable or shorter chimneys were dangerous and expensive. Further, steamboatmen would pass the added costs associated with adjustable chimneys (price of equipment, delay to operate the apparatus and the potential for accident) on to the consumer.

In 1850 the defendants presented witnesses to refute this contention. John List had been clerk on the Telegraph #2 which had lowered its chimneys to pass the bridge on at least six occasions in the previous year. But List testified that the boat had not been detained in the process, expense had not been incurred, and freight rates on the Ohio River had not changed since before the bridge was built.[39]

Another witness for the defense also testified to the speed and efficiency of lowering and raising chimneys at Wheeling. According to Jacob Beckwith, a downstream passenger on the Cincinnati, adjusting chimneys to pass the bridge had proven "no more a cause of detention to the boat, on her way down the river, than it is for the cook to prepare a dinner for the passengers to eat."[40]

Pennsylvania did not have a chance to rebut this evidence until the last few days of the hearing. In rapid

succession the complainant called three witnesses to explain the costs and procedures involved in lowering chimneys to pass the Wheeling bridge. Daniel H. Stone, a part-owner of the Keystone State, testified that the apparatus on his boat had cost $359.61, exclusive of chimney stiffening and labor.[41] Solomon W. Roberts, an upstream passenger on the Keystone State on December 7, described and timed the lowering and raising procedure. He counted twenty-three men taking part in the thirty-two minute operation.[42] Alexander Irwin, a downstream passenger on the Buckeye State on December 8, witnessed an accident at Wheeling when the boat's port chimney struck a bolt projecting below the bridge flooring. About six feet of chimney broke off and repairs took three hours and thirty-five minutes.[43]

Pennsylvania had raised the second major point of contention turning on the future of Ohio Valley trade as part of its expansion of evidence on points one and two. By the fall of 1850 the chimneys of the P. and C. packets had been altered to clear the bridge. In order to maintain their case in court, Pennsylvania had to show that the bridge would continue to obstruct boats. Pennsylvania counsel asked witnesses, who testified about historical advances in steamboat design on western waters, to anticipate future developments. To a man they foresaw larger boats with taller chimneys.

Bridge company witnesses disagreed. The President of the Ohio Line (which owned the Telegraph #1 and Telegraph

#2) declared that his boats had proven too large to run profitably to Pittsburgh. The shallow and narrow channel of the upper Ohio River restricted large boats to a season too short to pay for their heavy initial outlay and operating expenses.[44] The commander of the Peytona, a large boat on the lower river, agreed. He did not believe that even the enlargement of the L. and P. Canal would foster bigger boats on the upper river, because navigation was uncertain for much of the year and trips too irregular to prove profitable. He also foresaw railroads in the upper Ohio Valley making inroads in river commerce.[45]

On December 11, 1850 Commissioner Walworth closed testimony in the case of Pennsylvania v. Wheeling and Belmont Bridge Company.[46] Over the course of five months, in hearings at Wheeling, Pittsburgh, New York City, Cincinnati and Louisville, Walworth had heard ninety witnesses and received in evidence five important engineering proposals for long-span bridges, as well as lists of boat licenses, tables of shoals, measurements of steamboats and mathematical computations of chimney drafts.[47]

However, both parties still wanted to add material to Walworth's pending report. On December 31, 1850 the Wheeling and Belmont Bridge Company submitted a motion for extending the time and expanding the reference, and the Court heard the motion during the first week in January, 1851.[48] On behalf of the defendants Alexander H.H. Stuart

and Reverdy Johnson claimed that the commissioner had "undertaken to act as Judge and to exclude a large amount of most important testimony."[49] By procuring a continuation without notifying the defendants, the commissioner had taken "the defendants by surprise, deprived them of counsel and worked great injustice to their cause."[50] Therefore the defendants believed the Court should extend the hearing and require that the commissioner "take and embody in his record such testimony as their counsel may deem [significant] to the issues, leaving it for the Court to decide all questions which may arise as to the competency or admissibility of such testimony."[51] Robert J. Walker, acting for the complainant, resisted the motion "on the ground that the circumstances of the case urgently demanded a hearing at the present term."[52] The Court refused the defendants' motion until they received Walworth's report.[53]

Attorneys for the complainant wanted to add to the Walworth report by submitting arguments to the commissioner.[54] Walker wrote to Walworth on January 3 that "[n]othing would give me more pleasure than to argue the law in this case, and before you especially, leaving the mere scientific questions to others more competent and experienced."[55] However Walker acknowledged that if the complainant argued the case, "the defendents [sic] will not, and . . . this will be urged as a strong ground for continuance."[56] Delay would also cause impatient boatowners to exercise their "right to abate a public nuisance."[57]

Yet, Walker continued "never have you had so important a case before you."[58] Timing was crucial; if the Court did not receive Walworth's report by February 1, Walker feared "the case will not be decided this term, which I should regard as a great public calamity, and as possibly leading to results much to be regretted."[59]

Two days later Edwin M. Stanton wrote Walworth that "a speedy hearing now depends upon the time the Report gets in."[60] Stanton also intended to submit an argument, but a week later had reconsidered, and wrote Walworth that he agreed with Walker "that argument on our side might be sued as a ground for further application for continuance."[61] Therefore, Stanton told Walworth, the case would be "submitted on our side for your report without argument."[62]

The engineer appointed by Walworth submitted his report to the commissioner on January 24, 1851, and Walworth forwarded the entire report to the Court on February 13, 1851.[63] Cornelius Darragh, on behalf of Pennsylvania, filed a motion for final hearing on February 18.[64] And Walker's estimate of the Court's timetable proved correct when a week later Chief Justice Roger B. Taney continued the case until the second Monday of the Court's December, 1851 term.[65] In the interim the justices permitted each party to file exceptions to the commissioner's report.

State Political Context

While the United States Supreme Court thus postponed action for almost a year, the executive and legislative

branches of both Virginia and Pennsylvania interested themselves in the case. Governor John B. Floyd of Virginia directed the attention of the legislature to Pennsylvania v. Wheeling and Belmont Bridge in his message to the legislative session on December 2, 1850. Floyd stated his concern about "the pretension on which it [the case] proceeds."[66] He believed Pennsylvania's suit encroached "on the exclusive and sovereign authority of Virginia," and he asked the legislature to adopt measures to "maintain our jurisdiction against such a claim urged by a powerful commonwealth."[67] An unfavorable decision "would effectually and forever prevent bridging of the Ohio."[68] To Floyd the contest over Virginia's legislative control of its own waters was "of the gravest moment to the rights and interests of the commonwealth," and he questioned whether a private company should be subjected to the expenses of a suit "in which the state is principally interested."[69] The governor therefore recommended legislation to "protect our citizens against oppression, [and] our rightful jurisdiction against successful encroachment."[70]

The Virginia House of Delegates referred this section of the governor's message to its Committee for Courts of Justice and adopted the committee's subsequent report and accompanying resolution.[71] The report recounted the history of the suit and discussed various water levels and chimney heights. The committee identified a thirty-foot stage of water (which they computed the Ohio River had attained an

average of 1-1/2 days per year in the previous twelve years) and sixty-foot chimneys as reasonable measures for purposes of bridge design. These legislators considered Pennsylvania's insistence on clearance for the tallest chimneys (84 feet) on a forty-foot stage of water unreasonable, particularly since Pennsylvania had authorized lower bridges over the Alleghany and Monongahela rivers. The committee believed the case had been fabricated by the P. and C. Packet Line which had "suddenly" brought out "three or four" boats "towering some twenty feet above" boats in use before bridge construction began.[72] The committee warned that "in a question so grave as this, a foot or two cannot be the measure of the rights of states."[73]

So far the case had produced a "vast and almost incredible amount of testimony" consisting of "mainly contradictory opinions of all sorts of people," a large portion of whom "had contributed money to procure the institution of the suit."[74] In addition, Pennsylvania's claims of injury were specious: the most recent Canal Commissioners' report indicated "that the revenues from the public works of that state [Pennsylvania] connected with the Ohio, have been sensibly augmented during the last year."[75] Pennsylvania's suit had already proven "exceedingly expensive and harassing" to citizens of Virginia, and represented a "wanton attempt" to "destroy a work of art that is an honor to our age and country" and "to annul or

abridge the lawful authority of Virginia."[76] The committee therefore recommended the resolution: "that the executive be and is hereby requested to employ counsel . . . to act in conjunction with the counsel of the defendants in the defence of said suit."[77]

Pennsylvania Governor William F. Johnston's message to the legislature at Harrisburg of January 7, 1851 briefly alluded to the bridge suit after an extended discussion of the state public works. Governor Johnston believed that the bridge "puts in jeopardy large commercial interests of Pennsylvania."[78] He informed the legislature that he had watched the progress of the suit on behalf of the state and had directed the Attorney General and other counsel "to protect these [commercial] interests" before the U.S. Supreme Court.[79]

The Pennsylvania legislature soon voiced similar concern over changes in the volume of commerce in the context of the state investments in public works. Although there is no evidence that either house discussed the Wheeling bridge suit, the Senate considered the effect on Main Line traffic of completion of the B. and O. Railroad to Wheeling.[80] On March 5, 1851 the Senate requested that the Canal Commissioners identify how much Baltimore freight currently shipped east and west over the Main Line would be lost to the new route.[81]

The Canal Commissioners responded on March 17 that it was "useless to disguise the fact" that completion of the B.

and O. to either Wheeling or Parkersburg "will render that improvement the most formidible [sic] rival of Pennsylvania for the trade of the Valley of the Ohio."[82] They anticipated that east-west traffic on the Main Line would be "seriously affected."[83] Baltimore would gain a 98-mile advantage over the Pennsylvania route to Philadelphia from points below the railroad's junction with the Ohio River. Yet the Canal Commission did not discuss the loss of traffic or revenue caused by the Wheeling bridge obstructing steamboats feeding the Main Line. On the contrary, they expected that traffic and tolls "will be largely increased [in] the present year."[84]

The Pennsylvania legislature's concern about the effects of the completion of the B. and O. to the Ohio River shows that the members knew that the long-standing dispute over the railroad's terminus on the Ohio River finally had been settled. Soon after the 1847 settlement of the disagreement between the City of Wheeling and the railroad, a new quarrel arose over the language of the 1847 act relating to "the cheapest" route "upon which to construct, maintain and work" the railroad.[85] Engineers for the city and the railroad issued conflicting reports designating different routes as "the cheapest."[86] Both parties, exasperated by delays, sought legal opinions.[87] Wheeling once again memorialized the legislature and in February 1850 the city and the railroad addressed the Committee on Roads and Navigation on the issues in dispute.[88] The legislature

responded by its act of March 21, 1850 which required both parties to accept arbitration by a board of three independent engineers.[89]

Two weeks before Commissioner Walworth appeared at Wheeling to take evidence in the Wheeling Bridge case, this board assembled nearby to assess the various proposed routes to the river and hear evidence.[90] On September 27, 1850 the board informed Governor Floyd that the line preferred by the city was the "true and proper route" according to the act of March 6, 1847.[91] The B. and O. acquiesced, paid the costs of arbitration and commenced construction to Wheeling.[92]

In early 1851 Pennsylvania legislators and canal officials appeared more concerned about the potential impact of the completed Baltimore and Ohio Railroad on Main Line receipts than the effects of obstruction by the Wheeling bridge. Of course these Pennsylvania officials may have seen the two threats as indivisible--the completed railroad might cross the river on the bridge. Or perhaps only the governor, attorney general and steamboat interests at Pittsburgh foresaw the bridge as a threat to the "large commercial interests" of the state.

Yet the latter hardly seems probable. For example, William Thaw, a prosperous forwarding merchant at Pittsburgh and part-owner of canal boats and the Clipper #2, Keystone State and Brilliant, wrote his wife about the booming packet business on March 13, 1851 (while the Pennsylvania Senate awaited the Canal Commissioners' response to their request

for information).[93] According to Thaw "the packets are all now averaging $1,000 per week clear profit--and have been making the most remarkable series of big trips ever known."[94] Two days later he continued in the same vein: "the packets are the only things doing well, the Messenger and Buckeye together cleared $7000 in the last two weeks."[95] P. and C. Packet Line owners and no doubt the counsel for the state living in Pittsburgh (Stanton, Shaler and Attorney General Darragh) daily saw evidence of the thriving packet business.

Since the Canal Commissioners anticipated an immediate increase in tolls and river business boomed, state officials pursued the suit for reasons other than the purported injury to the state's investments in the Main Line caused by the Wheeling bridge. Several circumstances suggest that by the winter of 1850-1851 the public connected the Wheeling bridge with the B. and O. Railroad, and that Pennsylvania officials continued the suit because of that connection.

Bridge engineer Charles Ellet, Jr., had discussed the possibility of railroad use of the bridge in his Report on the Wheeling and Belmont Suspension Bridge (1847).[96] According to Ellet "the vast trade which will be brought by this great line [the Baltimore and Ohio Railroad] and its tributaries, will cross over the Suspension Bridge and probably at no distant day, require that [the] bridge be modified to pass the cars forward without any transhipment [sic] of persons or property."[97] In the meantime he

indicated that track laid on the bridge deck could accommodate horse-drawn railroad cars.

In late June, 1849 the engineer of the Pennsylvania and Ohio Railroad, Solomon Roberts, had addressed the first meeting of Pittsburghers opposed to the Wheeling Bridge. Roberts claimed that the bridge was designed as a connecting link between the B. and O. Railroad and Ohio railroads.[98]

In November, 1849 the Wheeling Gazette reported on the opening of the bridge and the various toasts "to this truly national work."[99] Guests at the celebration drank to the future when "the Baltimore and Ohio Railroad, which is progressing rapidly to completion . . . will soon reach Wheeling, where it will meet the Central Railroad . . . this bridge will then furnish an easy and safe transit across the Ohio for the cars running in either direction."[100] According to the sentiment of the day "[t]he Wheeling Bridge will form an important link in this grand chain of communication [east-west railroads]."[101]

On July 16, 1850 Commissioner Walworth had refused to hear testimony by former B. and O. engineer Jonathan Knight as to "the principal part of the trade, travel and mails" passing over the Ohio River.[102] Walworth stated that the Court had not intended the Order of Reference to include testimony on the relative rights of land and water traffic. Yet within a week of the Board of Engineer's September 24, 1850 announcement of the "true and proper" route of the B. and O., Commissioner Walworth asked his consulting engineer

William McAlpine to report on "whether the bridge as now constructed is adapted to railroad purposes."[103]

The counsel, managers and stockholders of the Wheeling and Belmont Bridge Company participating in Walworth's hearing also represented the City of Wheeling in its dispute with the B. and O. Railroad, and played prominent roles in the business community.[104] When the Board of Engineers resolved the city-railroad dispute, interests of the bridge company-city-local businesses appeared to coincide with the advancing railroad.

Identification of the B. and O. Railroad with the Wheeling bridge in the minds of Pennsylvania officials provided additional grounds for the suit. Personal ambition, long-standing commercial rivalries, technological rivalries and state sovereignty also operated to maintain it.

Stanton had written in September, 1849 that Justice Grier's opinion on the preliminary motion for an injunction against the Wheeling and Belmont Bridge Company "is entirely satisfactory," although he feared the opinion might induce the company to "raise the bridge without further proceedings. But this I do not desire. Having my hand in I am disposed to push it to the girth."[105] In the spring of 1851 Stanton wrote to a Philadelphia publishing house proposing to prepare a full report of the Wheeling Bridge case as "an original case in the Supreme Court and the first of the kind, involving points of practice never before

raised, and principles of vast importance that must often come in question."[106] His record of the case would present "many important principles in art and science" and "evidence by the most distinguished men in the country."[107] The public would find the case interesting due to "its magnitude, novelty and the rights and interests involved."[108] Stanton added that "[h]aving myself originally advised the proceedings, and had charge of it in every stage," the task "could more easily be accomplished by me than by anyone else."[109] As a young lawyer recently arrived in Pittsburgh, Stanton hoped that successful prosecution of the suit would help build his practice.[110]

The long-standing commercial rivalry between Pittsburgh and Wheeling continued throughout the opening years of the Wheeling bridge suit. The bridge company's 1850 appeal to the Virginia legislature had declared that Pittsburgh had brought the suit "to retard the prosperity of Wheeling by impeding her commerce, and preventing the construction of those other great public works which the facility of crossing the Ohio, will attract to this point."[111] The bridge company believed the suit had been brought not only to prevent Wheeling's prosperity, but also to protect Pittsburgh's, since promoters of the suit "urged in Pittsburgh that the bridge might affect certain commercial interests in regard to which that city looks upon Wheeling as its rival."[112]

Pittsburgh on the other hand saw Wheeling as an aggressor trying to block the river and divert its traffic. Pittsburgh commercial interests believed "so long as we have the Ohio open for navigation to all, free of tolls and other expenses and objections . . . and at these low freights and fare and quick time . . . we need not fear competition from any quarter."[113]

By 1850 railroad development had exacerbated the commercial rivalry between Wheeling and Pittsburgh. In June of that year Solomon Roberts of the Pennsylvania and Ohio Railroad declared before the Pittsburgh Board of Trade that the chief way to protect Pennsylvania's western railroads "was the prevention of the obstruction of the Ohio River at Wheeling by a bridge."[114] Removal of the bridge at Wheeling would give Roberts' own line an advantage in western connections since it terminated on the western bank of the Alleghany River at Pittsburgh.[115]

To the east railroad development from Pittsburgh and Wheeling in the late 1840s and 1850 consisted of reactivating or obtaining charters for short lines from the western termini to their rival's long line connection to the seaboard. Pittsburgh and Alleghany County subscribed to the Pittsburgh and Connellsville Railroad running southeast and intended to connect to the Baltimore and Ohio Railroad at Cumberland, Maryland; Wheeling and Ohio County subscribed to the Hempfield Railroad running northeast and intended to connect to the Pennsylvania Railroad.[116] Merchants and

businessmen in Baltimore and Philadelphia proved as willing to promote the secondary line as the primary.[117] The concern of the Pennsylvania legislature in the spring of 1851 over potential losses to the B. and O. showed the power of Philadelphia commerical interests, and the response of the Canal Commission that "Philadelphia is entitled to the highest consideration" and that the state should "divert as much trade as possible to that city" showed the beleaguered commissioners trying to retain Philadelphia support for the operation of the Main Line.[118]

By the early 1850s the canal commissioners and other Pennsylvania officials recognized that a hybrid railroad-canal-portage railroad like the Main Line would have great difficulty competing with long line railroads. The commissioners observed that "[n]o one will pretend to believe that this [Main Line] trade will continue to pursue its present channel clogged by high tolls when . . . it can obtain a shorter and cheaper route."[119] The bite of railroad competition was slower to be felt along the rivers, since steamboats maintained superior freight rates and passenger accommodations well into the 1850s.[120]

But climate and geography posed similar disadvantages to both canal and river transporters. The drought of the late summer of 1848 had prodded the editor of the Pittsburgh Gazette to remark that business which should have been "brisk and heavy" had stagnated because the river was so low that the navigation was "seriously obstructed and both

travel and goods are taking the Lake route."[121] Such conditions, according to the editor, demonstrated "the importance" and "the absolute necessity" of rail lines.[122] Railroads could serve larger territories than water-based systems and generally travelled shorter distances between points. Railroads were faster, more regular and more dependable than steamboats or canals and could operate year-round.

William Thaw described the frustrations of competition on the hybrid Main Line in letters to his wife in the spring of 1851: "the completion of the railroad [a section of the Pennsylvania Railroad] on the one hand and the portable boats on the other, . . . to say nothing of the breaches and delays [on the Main Line], all conspire to make this season's [canal] business look most threatening."[123] He and his partner Thomas S. Clarke therefore "now seriously anticipate the necessity of looking around for some other business to go at next year."[124] Two weeks later Thaw continued "[t]here never have been so many goods to come west as this year, we are all crowded in Phila. and had it not been for the villainous railroad we would have had a splendid year, as it is I can see nothing but trouble in our canal business."[125]

Thaw was not alone in anticipating "trouble in our canal business." In 1842 when the state defaulted on its interest payment on internal improvement debts, a movement had started to sell the public works to private

investors.[126] In 1843 the state sold the Erie extension of the system, and in 1844 the legislature passed an act to sell the Main Line for $20 million.[127] No takers appeared because of the high price. In the early 1850s another movement to sell the Main Line commenced when administrative reforms of the mid-1840s failed and the tax burden continued to rise.[128]

While canal operators, in order to exercise their "right" to conduct business along the Main Line, depended on the state's willingness to continue to service the internal improvement debt, steamboat operators appealed to what they considered the absolute "right" of free navigation along the rivers. In June, 1851 counsel for Pennsylvania in the Wheeling Bridge case described Virginia's authorization of the bridge as "threatening the freedom and security of navigation on the Ohio River."[129] Stanton had stated he "was amazed at Ellet's impudence" in designing the Wheeling Bridge in its existing configuration with "a declension so as to make a dead fall."[130] Ellet, exasperated by the suit, saw the issue as "whether this river belongs exclusively to the steamboats--from the bottom to the sky, or whether the people have a right to highways over it."[131]

R. W. Thompson of Indiana had declared at the opening of the Wheeling bridge that "we too, are going to erect a bridge in Indiana and we intend to take yours as a model."[132] "Not only will your bridge remain there, but others like it will be erected at other points on the Ohio;

ay, and more than all this, the great 'father of waters' will be bridged."[133] The Wheeling bridge, which Pennsylvania attorneys believed had caused "frequent notorious interrruptions of navigation" and "compelled" steamboats to "discharge at Wheeling their freight and passengers" appeared as a portent of things to come.[134]

According to Pennsylvania's attorneys the state should pursue the suit to defend free commerce on the Ohio River, "independent of any question immediately relating to the Wheeling Bridge and Pittsburgh interests."[135] Darragh, Shaler and Stanton informed the Governor that "following the example of Virginia, the States of Ohio and Kentucky authorized, last winter, the erection of bridges" over the Ohio River.[136] "If this assumed right is now suffered to remain undecided, it will soon be too late to question it." They warned: "abandonment of the present suit would . . . be equivalent to abandoning Pennsylvania commerce on the Ohio River . . . to the unchecked legislation and rival interests of bordering states."[137]

Report

When the Supreme Court considered Walworth's report at its December term in 1851, over a year had elapsed since the Wheeling bridge had blocked any boat, and Pennsylvania still had not offered proof of injury to the revenues of the Main Line. In the course of more than two years since the first request for an injunction, the bridge had not obstructed

river traffic but had come to symbolize the potential proliferation of bridges across navigable waterways.

The Order of Reference considered by the Court consisted of printed text of the examination of ninety witnesses, accompanying exhibits, William J. McAlpine's engineering report for the commissioner and Walworth's own report to the Court. Although the Court had restricted the engineer's duty to measurements of the bridge, "its appendages and appurtenances, and localities in connection therewith," the commissioner and counsel for both parties agreed to expand the charge to include the engineer's "opinions as to the expense and practicability of various alterations" to the bridge, and "the dimensions and mode of construction . . . of the larger classes of boats running upon the Ohio."[138]

McAlpine's report and accompanying drawings and tables presented in convenient form the dimensions of the bridge, the river and the steamboats, and his professional opinion on the adaptability of the bridge for railroad use and the feasibility of eight proposals to raise the bridge.[139] McAlpine also included information requested by Walworth on the measurements and capacities of boilers, heaters, grate bars, flues, engines and pumps, and ratios between engine components, as well as measures for fuel consumption.[140] The Court had not requested this information, and did not concern itself with adapting the boats to the bridge. Walworth may have considered such adaptation since the

documentation provided (in conjunction with the scientific theories and formulas advanced by various witnesses and contained in the books purchased by the commissioner and charged to the expenses of the case) could have been used to determine efficient adaptations of large steamboats to the bridge.[141]

In answer to the commissioner's question regarding railroad use, McAlpine found that the bridge "as now constructed" was not suitable for trains drawn by locomotives.[142] However, the bridge could carry individual passenger and freight cars drawn by teams of horses.[143]

McAlpine also determined the "practicability" of eight alterations to the bridge. The first six plans had been proposed by counsel; the last two by the commissioner.[144] Counsel proposed raising the suspension cables various heights at the towers; the commissioner proposed level 300 foot headways at designated heights above low water (leaving the calculations of cable heights at the towers to the engineer).[145]

In his analysis of the proposals McAlpine considered cost in relation to the amount of clearance obtained. Although plan six provided the greatest clearance (over 142 feet), McAlpine dismissed it as "very expensive" and "very inconvenient" to land transportation.[146] Of the remaining plans he selected proposals two, seven and eight as providing clearances of about 110, 100 and 120 feet

respectively at the least cost and without inconvenience to land conveyance.

Although McAlpine did not identify which of these plans he considered most appropriate, he discussed the advantages of number eight at the greatest length. According to McAlpine plan eight would provide a level headway of 300 feet over the western side of the channel at an elevation of 120 feet (27.75 feet higher than the apex of the present bridge).[147] The western location represented a convenience to steamboats coming downriver.[148] The additional height would allow vessels with chimneys of eighty-five feet (like the Cincinnati) to pass under the bridge on a thirty-three foot flood with two feet to spare. Apparently McAlpine found elevation of the bridge to 120 feet sufficient to nullify Pennsylvania's charge of steamboat obstruction.[149] His endorsement of plan eight also suggests that McAlpine did not foresee the increases in chimney height which Pennsylvania witnesses anticipated.

Walworth's finding for the Court, however, accepted anticipated increases in steamboat chimney height in one regard and denied them in another. In his response to the the Court on whether the bridge obstructed boats, Walworth acknowledged the future use of taller chimneys; but in his response to whether the bridge could be altered to alleviate obstruction, he refused to consider taller chimneys in his proposed bridge design.

In order to evaluate the testimony presented and the texts and reports studied, Walworth divided the first question put to him by the Court into two parts relating to the different methods of propulsion, and subdivided each of these into two further parts, dependent on present and future navigation needs. Walworth dismissed the Court's concern for sailing vessels in short order, since the Ohio River in his opinion "never was, and never will be, adapted to the navigation of vessels propelled by sails."[150]

He gave careful attention, on the other hand, to the matter of present and future steamboat obstruction. Using the testimony presented, Walworth traced steamboat development on western rivers in the previous twenty years in order to predict future development. Within this context he considered the operational and technological need for tall chimneys insisted upon by the owners of the Pittsburgh and Cincinnati packets, against the alternatives proposed by the defendants. Walworth acknowledged the "great diversity of opinion among the witnesses," but found "a great preponderance" in favor of "the necessity of very high chimneys."[151] He concluded his appraisal of technological considerations by "[r]ejecting the deductions of science on the subject," since the "teachings of experience show, that as these boats upon the Ohio have been gradually improved in their dimensions . . . the heights of their chimneys increased," and "they have been enabled to run with great speed."[152]

The commissioner's assessment of the operational need for tall chimneys also found "a very great conflict in the testimony of the witnesses," but "a decided preponderance of testimony in favor" of them.[153] He reported that the use of adjustable chimneys suggested by the defendants had been "attended with injury to chimneys, delay to the boats and danger to the limbs and lives of the passengers, . . . officers and crew."[154]

After considering current operational and technological needs with regard to tall chimneys, Walworth turned to consider future needs for taller chimneys. According to Walworth, even if the defendants' suggestions had enabled steamboats to run at the same speed with lower chimneys, they would not have disposed of the question under consideration because the steamboats could have attained "a still greater amount of speed by the use of tall chimneys," too.[155] And the commissioner believed the steamboats must be allowed to obtain this greater speed because the community was entitled to "the benefit of a fair competition" between western river steamboats and railroads "which are constantly being constructed . . . bounding on those waters."[156]

Walworth's solicitude for conditions of "fair competition" and his expectation that taller steamboat chimneys would enhance that competition determined his answer to the Court's first question. Had he merely considered whether the Wheeling bridge obstructed steamboats

"which are now engaged in the commerce and navigation" of the Ohio River, he could only have concluded that no boats had been obstructed since March 4, 1850 and none at all since the Order of Reference from the Court.[157] Instead he speculated on whether the bridge obstructed steamboats which "will undoubtedly be engaged in such navigation and commerce hereafter," and whether the bridge could be adapted for the passage of railroads.[158] The former consideration was before the commissioner as part of the Order of Reference. The latter consideration had apparently occurred to Walworth when he realized that the principles to be settled in the Wheeling Bridge case would apply both "to the manner of bridging the navigable waters of the Ohio at Wheeling" and "to the manner in which many other navigable streams" would be bridged "for ordinary transit, or for the passage of engines, and trains of railroad cars."[159]

Having decided that the Wheeling bridge obstructed future steamboats, if not present ones, the commissioner turned to the matter of how to alter the bridge to leave the navigation unimpeded. In his appraisal of methods to raise the bridge Walworth's conclusions were increasingly encumbered by his vision of its potential to carry railroad traffic. He discussed factors of bridge design such as grade, stability and strength in terms of both "ordinary transit" and "passage of railroad trains" and referred at length to the report of the failure of an English railroad suspension bridge.[160] Finally Commissioner Walworth

concluded that the Wheeling bridge should be replaced by another suspension bridge, although he considered it "very doubtful" that the bridge could carry trains "at their usual speed."[161]

The new height for the Wheeling bridge depended on anticipated chimney heights for steamboats. Walworth declared that the demands of steamboat interests for an unobstructed waterway for steamboats eighty-five feet tall on the flood of 1832 was unreasonable, and that "the mere fact" that a bridge might occasionally prevent the passage of a boat "for two or three days, in one of those extraordinary floods" would not constitute obstruction of the river.[162]

The commissioner settled on floods of thirty to thirty-five feet "as matters of ordinary occurrence [sic] at Wheeling," accommodated chimneys of eighty-five feet, and determined that the headway at the bridge should be "at least 120 feet", over "some convenient part" of the channel, "not less than 300 feet in width."[163] Referring to the proposals and cost estimates prepared by McAlpine, Walworth reported to the Court that this design was embodied in the eighth plan which best solved the problem of obstruction of navigation while maintaining convenient land access in the town.[164] As a result of the engineer's study of the costs of the proposal and his own study of the rate of return to the bridge stockholders, the commissioner concluded that the eighth proposal was "practicable" from the standpoints of

engineering and expense.[165] But he warned that he had made "no provision for a greater amount of headway should the future wants of travel and commerce upon the river require it."[166] He had adopted the height of 120 feet as "ample" for the present demands of steamboat navigation "upon the supposition that the dimensions of the boats running on the Ohio, from places above the bridge, and the heights of their chimneys, have about reached their maximum."[167]

At first glance Walworth's refusal to hear evidence on the volume of land traffic seeking to cross the Ohio River and his recommendation to raise the bridge to 120 feet appear to favor Pennsylvania's cause and resist the bridge company's arguments. Certainly his choice of elevation approached Pennsylvania witnesses' advocacy of a clearance of 130 feet and discountenanced the bridge company's defense of the bridge as built (at 92-1/2 feet). But analysis of underlying principles rather than preferred dimensions shows that Walworth's report favored the bridge company.

Pennsylvania had brought the suit on the principle of maintaining the free navigation of the Ohio River. Steamboat interests at Pittsburgh had convinced state officials that the Wheeling bridge was the first of many such obstructions of the river, and by the summer of 1850 Ohio and Kentucky had chartered similar endeavors. Walworth's recommendation, by raising the bridge twenty-seven feet (and not calling for its removal), rejected

Pennsylvania's argument that the right of navigation was absolute.

The bridge company had defended both its bridge and its charter. According to the bridge company the states had the right to charter improvment companies to fulfill community needs for transportation. This state power included bridging waterways so long as the interests of navigation were protected. Walworth, by recommending raising the bridge, acknowledged that states could charter bridges over navigable waters and reduced the Order of Reference to the question of the degree of obstruction.

At the outset of the hearings in 1850 the defense had protested vigorously when Walworth refused to hear evidence on the need of land traffic to cross the river. But Walworth's imagination (sparked by settlement of the B. and O. route to Wheeling and public enthusiasm for railroads in the Ohio Valley) had fabricated more railroads and bridges than defense witnesses could have demonstrated. This vision of the future had the commissioner so worried that he determined to provide "fair competition" between railroads and steamboats by accommodating the tall chimneys of the fast P. and C. packets with a higher bridge. As a result he managed to dissatisfy both parties to the suit.

Notes

1. Edwin M. Stanton to "My Dear Friend" [from comparative evidence John Sanders], June 28, 1850, Edwin M. Stanton Papers, Library of Congress (herafter cited as Stanton MSS, LC).

2. Pennsylvania v. Wheeling and Belmont Bridge Company, 9 Howard 658.

3. Wheeling Gazette, February 16, 1850. Height of chimneys from Record: State of Pennsylvania v. the Wheeling and Belmont Bridge Company, William Ottersan and George Croft, ([Washington, DC]: Gideon, [1850]), 202, (hereafter cited as Record).

4. Record, 202. Reuben Hyde Walworth, Order of Reference of the Supreme Court of the United States in the Case of the State of Pennsylvania, Complainant, against the Wheeling and Belmont Bridge Company and Others, Defendants, with the Proofs Taken . . . . (Saratoga Springs, NY: G.F. White, 1851), 56, 92, (hereafter cited as Walworth).

5. Wheeling Gazette, March 6, 1850.

6. Walworth, 83; Record, 202; Walworth, 702-703.

7. Edwin Stanton to Robert J. Walker, March 28, 1850, Robert James Walker Papers, National Archives.

8. Reuben Hyde Walworth to William Thomas Carroll, June 17, 1850, U.S. Supreme Court, Pennsylvania v. Wheeling and Belmont Bridge Company, Record Group 267, National Archives (hereafter cited as Pa. v. WBBC, National Archives). The Court ordered that each party advance Walworth $250 by the time he entered upon his commission. Subsequent expenses for the commissioner, an engineer and a clerk would be awarded against the parties by the Court. Walworth, 4.

9. Charles W. Russell was a Wheeling attorney and represented Ohio County (Wheeling was the county seat) in the Virginia House of Delegates from 1850 to 1853. Although each party proposed a procedure, neither would agree to the adverse party's proposition. As a result, when Walworth began taking testimony on the 16th, there was no agreement on what types of evidence would be heard. Walworth, 4-8.

10. Walworth, 8.

11. It is unclear whether the testimony taken by Walworth was intended to stand alone or in conjunction with the 1849 depositions. Where witnesses were heard again, their earlier testimony was usually cited. However in most instances questions and answers merely covered the same ground or expanded on earlier points. On only a few occasions did a recalled witness present new testimony.

12. For example see the testimony of Jonathan Myers, Walworth, 396-400; and John Leatherberg, Walworth, 429-432.

13. See the evidence of St. Clair Thomason, Captain of the Magnolia, Walworth, 535-537; and Samuel Young, Engineer of the Clipper #2, Walworth, 70-73.

14. See testimony of Jacob Hazlep, Walworth, 41-49. By showing the obstruction of other boats the P. and C. boats' reputations would not suffer and they would not lose business.

15. Captain Prescott H. Devol of the Clipper #2, Walworth, 55-61; and Captain Charles Stone of the Monongahela (1849) and the Keystone State (1850), Walworth, 92-96, represent typical accounts.

16. See Captain Samuel Dean's testimony (Walworth, 79-85) relating to lost business of the Buckeye State.

17. The two engineers were Stephen H. Long (Walworth, 548-561), who was recalled; and E.F. Johnson (Walworth, 215-235, 311-312, 333-334). In his deposition of 1849 Long had indicated that a bridge at 117 feet with 100 foot draw spans at each end was sufficient for uninterrupted travel on the river. In 1850 he testified that the Wheeling bridge should be raised to 134 feet or 90 to 100 feet above the flood of 1832 (see Walworth, 559). E.F. Johnson had been appointed by Commissioner Walworth to provide the consulting engineering services. Part way through the commission, however, the defense pointed out that Johnson was not only the brother-in-law of one of the complainant attorneys, but also had been involved in (and lost) a professional dispute with Charles Ellet, Jr. the engineer of the Wheeling Suspension Bridge (see Walworth, 118-120). Soon after Walworth had dismissed Johnson, he appeared as a witness for the complainant. Johnson recommended a bridge height of 130 feet for a level span of 400 feet (Walworth, 227).

18. See testimony of Jabez Woodward, Walworth, 49-52.

19. See testimony of Robert Getty, Walworth, 436-437.

20. The three men who provided expert scientific testimony for the complainant were Oliver Byrne, a former professor of mathematics at a British college for civil engineers and author of eighteen works on mathematics and civil engineering (Walworth, 112-130); James Renwick, professor of natural and experimental philosophy and chemistry at Columbia College, New York (Walworth, 97-112); and John Locke, professor of chemistry at the Medical College of Ohio (Walworth, 440-454). Byrne and Renwick were called on to discuss European scholarship (particularly Peclet's Traite de la Chaleur, 1843) on topics related to the operation of steam vessels. Locke, who had investigated the Moselle disaster in 1838 was asked to consider the dangers associated with slowing or stopping steamboats to lower their chimneys.

21. The procedure is discussed by Jacob Hazlep, Walworth, 42; and Alexander Irwin, Walworth, 653-654. Hazlep also states that in addition to the danger of machinery breaking and chimneys falling on the deck "we have on this river a very indifferent set of men. One half of them are the greenest kind of Irish and Dutch--more than one half of them--if you should tell them to hold on, they would be as likely to slack up the ropes as to hold on." Walworth, 44.

22. Tonnage is in carpenter's measure. In 1850 the P. and C. packets averaged 515 tons carpenter's measure. See Walworth, 704-705. The federal government had been in the process of buying out the Louisville and Portland Canal since 1842. See Paul B. Trescott, "The Louisville and Portland Canal Company, 1825-1874," Mississippi Valley Historical Review 44 (1958): 686-708.

23. See testimony of Joel Green, Walworth, 407-412. Green found among the benefits of larger steamboats cheaper rates and reduction in trip times. Larger boats whose size would be increased by lengthening the boat would carry more goods and be propelled faster with the same size engine. (It was a common belief of the time that a longer boat was a faster boat). If the Wheeling bridge limited the size of vessels, then it impeded technological progress.

24. Walworth, 9.

25. Ibid. 23.

26. Ibid. 24.

27. Ibid. 25, 9.

28. Testimony of Joseph Parry, Record, 309.

29. Testimony of John B. Martin, engine builder, Walworth, 521.

30. David L. Beatty, former engine builder, Walworth, 586.

31. Walworth, 144-155.

32. Ibid. 155.

33. Ibid. 149-151, 151-152.

34. Ibid. 151.

35. Testimony of Israel Dickinson, Walworth, 634-644.

36. Testimony of Jonathan Knight, Walworth, 8-12, 9.

37. Testimony of Charles M. Warren, Walworth, 624-627, 625.

38. The witnesses were Charles W. Copeland, William Hoffman, Thomas W. Harvey and John F. Rodman (engine builders); William Mason (steam boiler builder); Daniel C. Lasher and Isaac Pulver (steamboat engineers); and Hiram Wheeler, pilot.

39. Testimony of John List, Walworth, 12-18.

40. Testimony of Jacob Beckwith, Walworth, 540, 545.

41. Testimony of Daniel H. Stone, Walworth, 651.

42. Testimony of Solomon Roberts, Walworth, 651. This was the same Solomon Roberts who had participated in the first public meeting at Pittsburgh which raised the issue of the bridge obstructing steamboats. See Pittsburgh Commercial Journal, June 27, 1849.

43. Testimony of Alexander Irwin (also spelled Erwin), Walworth, 653.

44. Testimony of Thomas C. Coleman, Walworth, 577.

45. Testimony of John Shallcross, Walworth, 628.

46. Walworth, 658.

47. The five bridge proposals were: Charles Ellet, Jr. Report on a Railway Suspension Bridge across the Connecticut at Middletown, 1848 (Walworth, 236-266);

Edwin F. Johnson, New-York and Boston Railroad Company Report, 1847 (Walworth, 369-311); Charles Ellet, Jr. Report on the Wheeling and Belmont Suspension Bridge, to the City Council of Wheeling, 1847 (Walworth, 313-333); John A. Roebling, Report and Plan for a Wire Suspension Bridge Proposed to be Erected over the Ohio River at Cincinnati, 1846 (Walworth, 457-494); Charles Ellet, Jr. Letter on the Proposed Bridge across the Ohio River at Cincinnati with a Single Span of 1400 Feet . . ., 1849 (Walworth, 495-502).

48. "Motion to continue Pennsylvania v. Wheeling and Belmont Bridge Company," signed Alexander H.H. Stuart and Reverdy Johnson (cover letter dated December 31, 1850), Pa. v. WBBC, National Archives.

49. Ibid.

50. Ibid.

51. Ibid. This document is scorched and the word in ellipsis is illegible.

52. Edwin M. Stanton to Reuben Hyde Walworth, January 5, 1851, Stanton MSS, LC.

53. Ibid.

54. Walworth had indicated at the closing of testimony that he would entertain written and oral arguments by the parties at Saratoga Springs, New York (his home) on January 15, 1851. Walworth, 658.

55. Robert J. Walker to Reuben Hyde Walworth, January 3, 1851, Reuben Hyde Walworth Papers, Library of Congress (hereafter cited as Walworth MSS, LC).

56. Ibid.

57. Ibid.

58. Ibid.

59. Ibid.

60. Edwin M. Stanton to Reuben Hyde Walworth, January 5, 1851, Stanton MSS, LC.

61. Edwin M. Stanton to Reuben Hyde Walworth, January 12, 1851, Stanton MSS, LC.

62. Ibid.

63. William Jarvis McAlpine, Report as to the Measurements

of the Wheeling Suspension Bridge, etc., and as to Various Proposed Plans for Alterations in the Construction of the Bridge (N.p., 1851, reprinted in Walworth, 665-720). Walworth's own report to the Court, dated February 6, 1851 is printed in Walworth, ix-liv. The entire document was received by the Court February 13, 1851.

64. "Motion for final hearing," filed February 18, 1851, Pa. v. WBBC, National Archives.

65. "Order for Continuance," February 25, 1851, Pa. v. WBBC, National Archives.

66. "Message of Governor John B. Floyd to the Senate and House of Delegates of Virginia," December 2, 1850, in Journal of the Senate, 1851, Richmond, VA. 29.

67. Ibid.

68. Ibid.

69. Ibid. 30.

70. Ibid.

71. "Report of the Committee for Courts of Justice relative to the Suit by the State of Pennsylvania against the Wheeling and Belmont Bridge Company and etc.," Journal of the House of Delegates, 1851, Richmond, VA. Doc. 45. The resolution passed February 3, 1851 and was sent to Senate February 4. It was committed to Committee on General Laws February 11, and was reported out February 21 and made special order of the day for February 26. On February 26, 1851 it was tabled. No subsequent action was taken before the end of the session. Journal of the House of Delegates, 1851, Richmond, VA; and Journal of the Senate, 1851, Richmond, VA.

72. "Report of the Committee for Courts of Justice," 9.

73. Ibid. 6.

74. Ibid. 7.

75. Ibid. 5.

76. Ibid. 10.

77. Ibid. 11.

78. "Annual Message of the Governor of Pennsylvania," Pennsylvania Executive Documents for the Fiscal Year

ending 1850, 9.

79. Ibid.

80. There is no record of such a discussion in the House or Senate journals of 1851. The effect of the completion of the B. and O. Railroad was discussed in the Senate on March 4, 5 and 17, 1851, Journal of the Senate, 1851, Harrisburg, PA.

81. March 5, 1851, Journal of the Senate, 1851, Harrisburg, PA.

82. "Communication from the Canal Commissioners in Reply to a Resolution of the Senate," March 17, 1851, Journal of the Senate, 1851, Harrisburg, PA. Doc. 23A, appendix, 21.

83. Ibid.

84. Ibid. 22.

85. "An Act to authorize the Baltimore and Ohio Railroad Company to Construct the Extension of their Railroad through the Territory of Virginia," passed March 6, 1847; "Protest sent by order of the City Council of Wheeling to the Baltimore and Ohio Railroad Company in 1847" in Wheeling City Council, Contract between the City of Wheeling and the Baltimore and Ohio Railroad Company with a Recent Correspondence between the President of the Company and a Committee of the City (Richmond, VA: Colin Baptist and Nowlan, 1850).

86. Benjamin H. Latrobe, "Report of the Chief Engineer of the Baltimore and Ohio Railroad . . . ," February 15, 1849, in Baltimore and Ohio Railroad Company, Address of Thomas Swann, Esq., President of the Baltimore and Ohio Railroad Company, . . . in Relation to the Act of the General Assembly of Virginia . . . Providing for a Settlement of the Route . . . to the City of Wheeling (Baltimore, MD: Baltimore and Ohio Railroad, 1850); Charles Ellet, Jr. Report on the Location of the Western Portion of the Baltimore and Ohio Railroad to a Committee of the City Council of Wheeling (Philadelphia: John C. Clark, 1850); and Charles Ellet, Jr. Second Report on the Location of the Western Portion of the Baltimore and Ohio Railroad to a Committee of the City Council of Wheeling (Philadelphia: John C. Clark, 1850).

87. "Opinion of the Honorable Daniel Webster," January 2, 1850, in Wheeling City Council, Contract between the City of Wheeling and the Baltimore and Ohio Railroad Company . . .;" and "Opinion of J. M. Patton and Conway

Robinson," January 31, 1850 printed in B. and O. Railroad, Address of Thomas Swann . . . .

88. Charles W. Russell to James S. Wheate, January 4, 1850, and Charles W. Russell to Thomas Swann, January 11, 1850, in Wheeling City Council, Contract between the City of Wheeling and the Baltimore and Ohio Railroad. Wheate was the city clerk of Wheeling and also served as Ohio County delegate to the General Assembly for the 1849-1850 session. See also John H.B. Latrobe, Minutes of the Argument Delivered by the Counsel of the Baltimore and Ohio Railroad Company before the Committee on Roads and Internal Navigation of the Legislature of Virginia, in Reply to the Argument of the Counsel of the City of Wheeling (Boston: Eastburn's Press, 1850).

89. Act of March 24, 1850. "Concerning the City of Wheeling and the Baltimore and Ohio Railroad Company."

90. The engineers selected by the governor were M. Lewis Clark of St, Louis, Missouri, Professor D.H. Mahan of West Point, New York and John McRae of Charleston, South Carolina. The board met at Elizabethville, Virginia on July 1, 1850. On September 2, 1850 William Raymond Lee of Massachusetts replaced McRae on the board. See "Organization and Proceedings of the Board of Engineers appointed to decide matters of difference between the City of Wheeling and the Baltimore and Ohio Railroad Company," in Annual Reports and Other Documents, 1850-1851, Richmond, VA. Doc. 17.

Among the presentations made were Charles Ellet, Jr. and Jonathan Knight, General Principles for the Comparison of the Grave Creek and Fish Creek Routes, Submitted to a Board of Arbitrators [Wheeling, 1850]; and John H.B. Latrobe, Answer of the Counsel of the Baltimore and Ohio Railroad Company to the Argument of Charles W. Russell, Esq., Counsel of the City of Wheeling (Baltimore, MD: John Murphy, 1850).

91. D.H. Mahan, W. Raymond Lee and M. Lewis Clark, Board of Engineers to John B. Floyd, Governor of Virginia, September 27, 1850, in "Organization and Proceedings of the Board of Engineers," in Annual Reports and Other Documents, 1850-1851, Richmond, VA. Doc. 17.

92. Milton Reizenstein, The Economic History of the Baltimore and Ohio Railroad, 1827-1853, Studies in Historical and Political Science, series 15, no. 7-8 (Baltimore, MD: Johns Hopkins University Press, 1897), 68-71; and John F. Stover, History of the Baltimore and Ohio Railroad (West Lafayette, IN: Purdue University Press, 1987), 67-71.

93. Elisabeth M. Sellers, "The Pittsburgh and Cincinnati Packet Line: Minute Book, 1851-1853," Western Pennsylvania Historical Magazine 19 (1936): 243-254; and Frederick Way, Jr. Way's Packet Directory 1848-1983 (Athens, OH: Ohio University Press, 1983).

94. William Thaw to Elizabeth Thaw, March 13, 1851, Thaw Papers, Historical Society of Western Pennsylvania (herafter cited as Thaw MSS, HSWP).

95. William Thaw to Elizabeth Thaw, March 15, 1851, Thaw MSS, HSWP.

96. Charles Ellet, Jr. Report on the Wheeling and Belmont Suspension Bridge to the City Council of Wheeling (Philadelphia: John C. Clark, 1847).

97. Ibid. 38.

98. Pittsburgh Commerical Journal, June 27, 1849.

99. Wheeling Gazette, November 17, 1849.

100. Ibid.

101. Ibid.

102. Walworth, 9.

103. McAlpine, 27.

104. For example, Charles W. Russell, attorney for the bridge company, also served on its board of managers, represented Ohio County in the House of Delegates (1850-1853) and represented the city in the B. and O. dispute. Charles Ellet, Jr., engineer of the bridge and a major investor in the bridge company, prepared the city's engineering studies in its dispute with the B. and O. Morgan Nelson, one of the attorneys who had taken depositions on behalf of the bridge company in 1849, was a member of the board of managers and served on the city council and as a member of the city railroad committee, and was President of the Western Insurance Company and Director of the Wheeling Savings Institution. John S. Brady, mayor of the city, was a member of the Wheeling Bridge Company board of managers, Cashier of the Merchants' and Mechanics' Bank, Director of the Fire and Marine Insurance Company and Director of the Wheeling Hotel Company. James S. Wheate was also a member of the Wheeling Bridge board of managers, was the city clerk, a member of the House of Delegates (1849-1850) and secretary of the Wheeling Gas Company. Interlocking boards connected the bridge company, the city and the two principal banks. The

city had invested $22,500 and the banks $25,000 each in the Wheeling and Belmont Bridge Company. See Oliver I. Taylor, Directory of the City of Wheeling and Ohio County (Wheeling, VA: Daily Gazette, 1851).

105. Edwin Stanton to John Sanders, August 31, 1849, Stanton MSS, LC.

106. Edwin Stanton to Messrs. Johnson, March 15, 1851, Edwin M. Stanton Papers, Historical Society of Pennsylvania (hereafter cited as Stanton MSS, HSP).

107. Ibid.

108. Edwin Stanton to Messrs. Johnson, March 17, 1851, Stanton MSS, HSP.

109. Edwin Stanton to Messrs. Johnson, March 15, 1851, Stanton MSS, HSP.

110. George C. Gorham, Life and Public Services of Edwin M. Stanton 2 vols. (Boston: Houghton Mifflin, 1899), 1:30-37.

111. Memorial of the Wheeling and Belmont Bridge Company to the General Assembly of Virginia, December 6, 1849, in petitions to the Virginia General Assembly, Virginia State Library.

112. Ibid.

113. O. Ormsby Gregg, Pittsburgh: Her Advantageous Position and Great Resources as a Manufacturing and Commercial City (N.p., 1845), 29.

114. Wheeling Gazette, June 14, 1850.

115. Pittsburgh's railroad development in the 1840s and 1850s is covered by: History of Pittsburgh and Environs 2 vols. (New York: American Historical Society, Inc., 1922), 2: 157-164; Joseph S. Clark, Jr. "The Railroad Struggle for Pittsburgh: Forty-three Years of Philadelphia-Baltimore Rivalry, 1838-1871," Pennsylvania Magazine of History and Biography 48 (1924): 1-37; E. Douglas Branch, "Success to the Railroad," Western Pennsylvania Historical Magazine 20 (1937): 1-14; William Kenneth Schusler, "The Railroad Comes to Pittsburgh," Western Pennsylvania Historical Magazine 43 (1960): 251-266.

116. History of Pittsburgh and Environs, 164; Hempfield Railroad Company, The Hempfield Railroad and its Principal Tributaries (Philadelphia: John C. Clark, 1852), 20; American Railroad Journal 24 (May 31,

1851): 343; and American Railroad Journal 25 (January 3, 1852): 11.

117. See items at note 115; Stover, 67; and Carter Goodrich and Harvey Segal, "Baltimore's Aid to Railroads: A Study in the Municipal Planning of Internal Improvements," Journal of Economic History 13 (1953): 2-35. The Philadelphia and Baltimore rivalry in the context of seaboard rivalries is described in Robert Greenhalgh Albion, The Rise of New York Port, 1815-1860 (New York: Scribners, 1939), see particularly Chapter 18 "The Disappointed Rivals," 373-388.

118. "Communication from the Canal Commissioners . . . ," Journal of the Senate, 1851, Harrisburg, PA. Doc. 23A, appendix, 21.

119. Ibid.

120. See Louis C. Hunter, Steamboats on Western Rivers: An Economic and Technological History (Cambridge, MA: Harvard University Press, 1949), particularly Chapter 12 "Critical Decade," 481-519.

121. Pittsburgh Gazette, September 14, 1848.

122. Ibid.

123. William Thaw to Elizabeth Thaw, March 1, 1851. Thaw MSS, HSWP.

124. Ibid.

125. William Thaw to Elizabeth Thaw, March 15, 1851, Thaw MSS, HSWP.

126. Louis Hartz, Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948), 161.

127. Ibid. 162.

128. Ibid. 164.

129. C[ornelius] Darragh, Charles Shaler and Edwin M. Stanton to William F. Johnston, Governor of Pennsylvania, n.d. [from internal evidence June, 1851], in "Communication from the Secretary of the Commonwealth relative to correspondence of Wheeling Bridge Case" in Journal of the House of Representatives, 1852, 2: 94.

On June 3, 1851 Alexander H. H. Stuart had written Governor Johnston requesting an interview to discuss Pennsylvania's withdrawal from the suit. Stuart stated

that if the Wheeling bridge company lost the case, the bridges over the Alleghany and Monongahela rivers would stand equally jeopardized. Johnston wrote the state counsel for advice on June 9. This letter is the counsels' response.

130. Edwin M. Stanton to [from comparative evidence John Sanders], [late August, 1849 by internal evidence], Stanton MSS, LC. Stanton Papers, Library of Congress.

131. Charles Ellet, Jr. to William S. Johnston, September 27, 1849, Charles Ellet, Jr. Papers, Engineering Library, University of Michigan (hereafter cited as Ellet, MSS).

132. Wheeling Gazette, November 17, 1849.

133. Ibid.

134. C[ornelius] Darragh, Charles Shaler and Edwin M. Stanton to William F. Johnston, Governor of Pennsylvania, [June, 1851], in "Communication from the Secretary . . . ," in Journal of the House of Representatives, 1852, 2: 93.

135. Ibid.

136. Ibid.

137. Ibid.

138. 9 Howard 658; Walworth, 334.

139. Walworth's instructions prohibited McAlpine from expressing his opinion on whether the bridge obstructed navigation. Walworth, 334.

140. McAlpine, 22.

141. Receipt from Daniel Appleton and Co., New York for six books on steam engines and steam navigation to R.H. Walworth, October 8, 1850. Pa. v. WBBC, National Archives.

142. McAlpine, 9.

143. Ibid.

144. Ibid. 22; Walworth, xi.

145. Proposal 1: to raise cables at each tower 20 feet.
Proposal 2: to raise cables at each tower 30 feet.
Proposal 3: to raise cables at each tower 40 feet.
Proposal 4: to raise cables 20 feet at east tower,

and 40 feet at west tower.
Proposal 5: to raise cables 30 feet at east tower, and 58.6 feet at west tower.
Proposal 6: to raise cables 50 feet at east tower, and 80 feet at west tower and maintain a level headway across entire span.
Proposal 7: raise deck for level headway of 300 feet over western part of channel to 100 feet.
Proposal 8: raise deck for level headway of 300 feet over western part of channel to 120 feet.

Costs to maximum heights* of proposals:

Present Bridge:		92.22 feet
Proposal 1:	$ 94,091.50	104.81
Proposal 2:	142,554.50	109.71
Proposal 3:	221,742.25	123.13
Proposal 4:	167,181.75	110.17
Proposal 5:	279,873.50	122.32
Proposal 6:	500,184.00	142.22
Proposal 7:	66,588.00	100.00
Proposal 8:	208,597.25	120.00

*Suspension design is based on the catenary curve of the suspended cables which do not vary directly with the vertical changes in the heights of the points of suspension.

McAlpine, 9-21.

146. Ibid. 21.

147. Ibid. 20-21.

148. Ibid. 21. Descending steamboats customarily rounded to in order to land at the Wheeling wharf just below the bridge.

149. Pennsylvania witnesses advocated a clearance of at least 130 feet to obviate the charge of obstruction.

150. Walworth, xxix.

151. Ibid. xxxvii.

152. Ibid.

153. Ibid. xxxv.

154. Ibid.

155. Ibid. xlv.

156. Ibid.

157. Ibid. xlv-xlvi.

158. Ibid. xlvi.

159. Ibid. x.

160. Ibid. xii. Walworth referred to Robert Stephenson's testimony before commissioner Lord Wrottesley, July, 1849 regarding the failure of the Stockton and Darlington Railroad suspension bridge over the Tees River.

161. Walworth, xvii.

162. Ibid. xlviii-xlix.

163. Ibid. l.

164. Ibid. li.

165. Ibid. lii-liii.

166. Ibid. liii.

167. Ibid.

CHAPTER IX
BEFORE THE SUPREME COURT, 1851

The Court had intended its Order of Reference to Commissioner Walworth to determine the facts in the case of Pennsylvania v. Wheeling and Belmont Bridge Company, but the justices found on hearing new arguments in December, 1851, that the parties to the suit continued to dispute factual as well as legal matters. Walworth's report and recommendation to raise the bridge to 120 feet only appeared to have foreclosed the review of bridge engineering concerns. Both Pennsylvania and the bridge company considered the conditions of steamboat operation on the Ohio River open to further argument, and their counsels' constant reference to principles of steamboat technology and operation during Walworth's hearings enhanced the rearguments of both sides. But the strategies of the presentations in 1851 parallelled the strategies of 1849 and 1850. Having failed to show either injury to Pennsylvania's investments on one side, or absolute free navigation under the bridge on the other, both sides fell back to secondary arguments over optimal versus typical steamboat operation.

Pennsylvania filed exceptions to Commissioner Walworth's finding of no obstruction of sailing vessels and his recommendation to raise the bridge to 120 feet to

provide an unimpeded waterway.[1] The state's attorneys excepted on the grounds that the bridge did not provide adequate headway for ships and sea-going vessels propelled by sails and that the commissioner's recommended alteration was not sufficient for current steamboat use and did not provide for "the future wants of travel and commerce" on the Ohio River.[2] Pennsylvania concluded its exceptions with the request that "no bridge be allowed across said channel; or if any be allowed, that the elevation . . . be fixed . . . at not less than 145 feet . . . across the whole width of the channel."[3]

The defendants filed exceptions to the commissioner's finding and to his recommendation to raise the bridge because they believed the bridge did not impede boats "now accustomed to navigate" the river "in the usual manner."[4] They excepted that part of his report which concluded that suspension bridges were not adapted to railroad carriage on the grounds that the conclusion was "not only incorrect, but [was] on a subject not referred to him," and would "tend to prejudice the defense improperly."[5] They also excepted Walworth's refusal "to receive or report any testimony tending to show the amount of inconvenience or injury" which the public would suffer in the absence of the bridge.[6] The bridge company attorneys also submitted seven other exceptions related to procedural matters.[7]

The Court heard arguments in December, 1851 and again released counsel from the usual two hour limit. Edwin M.

Stanton and George Harding argued the case on behalf of the complainant, while Charles W. Russell and Reverdy Johnson appeared for the defendants.

Stanton's argument parallelled his earlier presentation of testimony on behalf of Pennsylvania, the complainant's exceptions to Walworth's report and the Complainant's Brief.[8] Of the six points Pennsylvania had made as early as 1849, five points were again considered by counsel in the 1851 argument. Stanton, however, conceived his new argument as addressing the two "main questions" before the Court dealing with "the existence and extent of obstruction, and the adequacy of the proposed remedy" and divided the five points accordingly.[9]

Stanton's discussion of "the existence and extent of obstruction" relied on the evidence collected on the first point in the earlier hearings (that there were no obstructions to the natural Ohio-Mississippi waterway except the Wheeling bridge) and on collateral material identified in the brief related to the regimen of the river, the nature of river commerce and the boats which carried it. Large packets, Stanton claimed, were best adapted to conducting Ohio River commerce.[10] Jumping from larger packets in general to the Pittsburgh and Cincinnati Packet Line in particular, Stanton described the boats' typical trip load of 200 passengers and 300 tons of freight; each packet averaged thirty round trips in a year.[11] The total traffic carried by these seven boats represented three-fourths of

the travel and one-half of the trade on the river. The Wheeling bridge, Stanton declared, obstructed this traffic.[12]

According to Stanton the inclined plane of the Wheeling suspension bridge "arrested" large packets "upon any stage of water" because the "peculiarity" of its form provided no level headway and the "limited space" of the bridge's vertical clearance "only exists when it is not available--when there is no water in the river."[13] Further, as the river rose, "both the lateral and vertical space required for navigation is diminished, so that when the river reaches a good navigable stage of fifteen feet, the available steamboat channel is contracted from 980 feet to 100 feet in width and seventy-five feet in height."[14] Again jumping from the general to the particular, Stanton referred to the boat detentions itemized in the brief, and proclaimed that this evidence proved the Wheeling bridge constituted "a perpetual obstruction" of the river.[15]

But the defendants had claimed that the tall chimneys of the P. and C. boats were unnecessary, and could be shortened to allow the packets to pass the bridge. Stanton countered this claim by referring to the evidence related to point two (that modification of the Pittsburgh and Cincinnati packets' chimneys was unreasonable). He considered the general necessity for tall chimneys and the various alternatives proposed by defense witnesses. Stanton observed that steamboats, whether on western or

eastern rivers, the lakes or the ocean, employed tall chimneys. This use offered "the most convincing proof that such means are essential to the end [of greater steam power]."[16]

According to Stanton, testimony of scientific and practical men included in the Complainant's Brief demonstrated that natural draft depended on the height of steamboat chimneys, and that the limited space for machinery on steamboats made tall chimneys the best means of securing draft. In an extended analysis of the defendants' proposals to modify chimneys or provide artificial draft, Stanton produced testimony to the effect that such modifications were costly, inconvenient, inadequate and dangerous.[17] Stanton concluded that whether "we follow the lamp of experience or the light of science," tall chimneys were necessary on the powerful packets.[18]

Turning from steamboats to sailing vessels, Stanton argued that Walworth's report was in error. The material already presented on point four (that the bridge would obstruct sea-going vessels built at Pittsburgh) and reports of the Secretaries of War in 1840 and 1844 showed that shipyards on western rivers could produce steam propellers and sailing vessels for the merchant marine and navy, "equal in quality and twenty per cent. cheaper than at any Atlantic port."[19] But the Wheeling bridge presented "at all times an impassable barrier" to the passage "with their masts and chimneys standing" of ships and war-vessels built at

Pittsburgh "the principal ship-building port west of the mountains."[20]

According to Stanton the second "main question" before the Court dealt with the adequacy of Walworth's remedy. Here Stanton relied on point six (that either the bridge should have been built higher or multiple steam ferries used). He began by stating the proposition that freedom of navigation implied freedom of the channel and "the use of its surface at whatever elevation, width or depth may be presented."[21] Freedom of navigation also implied "freedom of the vessel" and the design of its "form and dimensions as in the judgment of the navigator may best accomplish his purpose."[22] The present needs of commerce required ships with masts 100 to 125 feet above the water and steamboats with chimneys of ninety-five feet.

Stanton argued that Walworth had not secured free navigation because he had merely proposed a compromise between the interests of navigation and the defendants, and had stopped short of the present necessities of commerce. While Walworth's remedy would expand the area under the bridge, it did not provide for present or future needs. Stanton stated that the vast West would continue to rely on steamboats "to transport their bulky agricultural products to market, and bring back emigrants."[23] Steamboat navigation would "always surpass any other mode [of travel] in cheapness, safety and comfort."[24] The evidence in the brief showed that "all commerical men who have been examined

upon the subject, without a dissenting voice" had expressed the opinion that with the improvement of the navigation at the falls of the Ohio River "large vessels will supersede all others now in use."[25]

But the defendants had objected to removal or raising the bridge on the grounds of "the alleged beauty and magnificence of their structure" and "the alleged hardship" of expense.[26] Stanton dismissed the former argument with the statement that the question before the Court was not "what are its merits as a work of art" but "its results as a regulation of commerce."[27] Stanton reasoned that even if the bridge "surpass[ed] the works of Babel and of the Memphian kings," by providing a convenient avenue of 1010 feet "for common travel and heavy teams," it also "arrest[ed] steamboats upon their voyage of a thousand miles."[28] Raising the bridge to a suitable elevation, Stanton argued, would create even "stronger sensations of beauty and power."[29]

Stanton then turned Ellet's Report on the Wheeling and Belmont Suspension Bridge (1847) against the bridge company defense of "the alleged hardship" of cost. According to Stanton, Ellet had indicated that with railroad use "the annual income of the bridge cannot be less than twenty-five per cent. per annum" making it "'one of the most profitable investments in the country.'"[30] Stanton declared such prospects proved "there is no hardship" in requiring the defendants to raise their bridge.[31]

Stanton next addressed the bridge company's insistence on the need for commerce to pass over as well as along the river. But such "pretexts" of necessity were common in the arguments of corporations which encroached on the public right, and English chancery courts had "sternly resisted" these pleas of necessity.[32] Moving from the specific circumstance at Wheeling to the broader picture of commerce in general, Stanton declared that bridges for common travel over navigable rivers were unnecessary because "ferries afford[ed] ample means for travel."[33] The "great race for commerce" according to Stanton was between "the boat and the [railroad] car."[34] In the conflict between "travel that creeps upon a common road and commerce rushing through a great river," the water route had already won.[35]

Stanton also considered the diversion of trade attributed to the bridge. Expanding on point three (that boat obstruction by the bridge had caused trade and passengers to divert from Pittsburgh) Stanton assumed that the Wheeling bridge represented the potential of future bridges to destroy long-line steamboat trade to the detriment of the American economy. According to Stanton the Wheeling bridge "demand[ed] the sacrifice of the greatest instrument of commerce known to man."[36] Not only had the bridge been poorly designed--"combining the qualities of a hill for the wagon, and a trap for the boat," but also its charter had been used as a model by other bridge promoters.[37] State legislatures had recently

chartered bridges at Cincinnati, Louisville, Maysville, Parkersburg, Portsmouth, Marietta, Wellsburg, Steubenville, and Wellsville.[38] Stanton lamented that "encountering such conflict along its course, steamboat commerce must perish," or maintain only short hauls between bridges.[39] Ellet's proposals for bridges at Cincinnati and St. Louis set the same design parameters as the Wheeling bridge which had become, according to Stanton, "the rule of navigation upon the Ohio, the Mississippi and Missouri--in short, the law of western waters."[40]

Having cast a pall over the future of steamboat commerce if the Wheeling bridge survived, Stanton next turned his efforts to showing that the Wheeling bridge would also injure railroad traffic. He painted the picture of New York, Pennsylvania, Maryland and Virginia "straining all their energies to reach the steamboat commerce of the Ohio river, so as to bear it upon their iron roads across the mountains to their Atlantic ports."[41] Bridges obstructing the river would also disrupt these railroad connections with river traffic.

Most importantly, however, Stanton declared that allowing the Wheeling bridge to remain would create a dangerous precedent of state regulation of commerce. Railroads as well as rivers would be subject to "the pernicious influence of these bridge regulations."[42] The question before the Court was whether the rivers of the West would remain "free for the wants of commerce," or be

"regulated and controlled by local corporations" created by state legislatures.[43] Even with guarantees of free navigation, state legislatures had proven unable to enforce their measures. The Court had only to look at the "fruitless provisions to secure navigation" provided by the Virginia legislature in the Wheeling bridge charter.[44] Bridges also conflicted with the federal policy of improving waterways because they "would render abortive" any enlargement of the Louisville and Portland Canal or the removal of snags and bars from the channel.[45]

Stanton appropriately concluded his argument by referring to constitutional law. The Constitution guaranteed "the freedom of commerce between the states from any state regulation" and "the equality and security of the ports of every state."[46] But the Wheeling bridge violated these guarantees, and Pennsylvania therefore had asked the Court "to be relieved from the admitted injury suffered by her."[47] The Court, according to Stanton, should require the defendants to raise their bridge or remove it.

Stanton's argument cast his client in the role of protector of the general welfare and cast the defendants in the role of selfish opportunists. Stanton connected the obstruction on six occasions of four P. and C. boats to the obstruction of steamboats in general and to the even broader concept of obstruction of "commerce."[48] The defendant corporation by building the Wheeling bridge had obstructed commerce and usurped the federal commerce power.

Stanton stated that the bridge obstructed large steamboats "on any stage of water."[49] Yet in two years only four boats had been detained on stages of water in excess of twenty-five feet.[50] Stanton also exaggerated the amount of trade identified by witnesses and the significance of the reports of the Secretaries of War on potential construction at Pittsburgh of sailing vessels and ships of war.[51]

While casting the onus of opportunism on the bridge company, Stanton was not above a little opportunism himself. For example, he countered the bridge company's claim of financial hardship with an exposition of the potential profitablility of railroad carriage to the bridge company, but in the next paragraph he argued against the bridge company's claim of necessity on the grounds that the bridge could only carry common road traffic and was therefore out of step with the times. At one moment in his argument the railroad competed with the steamboat in the "great race" for commerce, a moment later the eastern states' railroad endeavors complemented steamboat traffic by transporting goods over the mountains to and from the seaboard.

The strategy of emphasizing the "obstruction" of "commerce" served the dual purpose of enhancing the evidence and shifting the legal context. Because Pennsylvania's evidence did not show the irreparable injury necessary to obtain an injunction for private nuisance, Stanton abandoned nuisance law and gambled that he could attract the justices' interest in the broader issue of the regulation of

commerce where his evidence might be more convincing. He dismissed the question of jurisdiction which had brought the matter to the Court by stating that it had been "fully argued at the former term."[52] He alluded instead to "freedom of commerce" and "equality and security" of ports "guarantied [sic] by the Constitution" and asked the Court to "secure these rights" for Pennsylvania.[53]

Stanton's strategy of shifting to commerce power issues appears to have been anticipated by the defense.[54] While the defendants, like the complainant, spent most of their argument on the facts of the case, they also defended their position with regard to the commerce power. They acknowledged that the Passenger Cases "perhaps" found that Congress had exclusive power to regulate commerce, but they contended that it was "abundantly clear" that the Court had never found "that the Constitution without congressional action, annuls those laws which a State fairly enacts in virtue of her reserved powers."[55] The defense attorneys reasoned that "such State laws" were valid unless they were found "to be in palpable conflict" with an Act of Congress; they were not void "merely because they incidentally affected the commerce among the States."[56] The police power, "laws for regulating internal commerce" of the states, and "those which respect turnpike roads, ferries, & c.," according to Chief Justice Marshall in Gibbons v. Ogden, remained "subject to State legislation."[57] In New

York v. Miln the Court had found these "internal police" powers "complete, unqualified and exclusive."[58]

According to the defendants Congress had been silent in the matter of "needful structure[s]" built under state authority which might interfere with navigation.[59] The act regulating coasting licenses was "general and vague" and did not show that Congress intended licensed vessels to violate "the salutary authority of the States over their domestic highways."[60] On the contrary, Congress' silence indicated that "the license to trade must be exercised in subordination to jurisdiction of the States."[61] In Willson v. Blackbird Creek Marsh the Court had allowed a dam constructed by a state in a navigable stream to stand. According to the Court unless such internal improvement projects authorized by states conflicted with the Constitution or federal law, the matter remained "an affair between the government . . . and its citizens."[62] Analogyzing to the present case under argument, the Wheeling bridge attorneys stated that the Virginia legislature's explanatory act of January 11, 1850 had declared the bridge in conformity with the intent of the original charter. Therefore, the defense contended "until Congress shall think proper to legislate upon the subject" local internal navigation had been "left to the regulation of the States to whom the river belongs."[63]

Turning to the factual aspects of the dispute, the Wheeling bridge attorneys presented their clients' position

under five headings instead of the three subdivisions which formed their basis for the collection of evidence in 1849 and 1850. These new headings corresponded more closely to the points of Pennsylvania's argument, enabling the defense to counter more directly the complainant's points.

The defense attorneys couched each of their points in positive terms, and like the complainant's attorneys, sought to make their position appear more in the interest of the general public than their opponent's. For example, they described Pennsylvania's case as a "vexatious" suit brought by a commercial rival over whether a bridge blocked six steamboats with exceptionally tall chimneys.[64] Yet to the defense the case would settle "the relative rights of commercial intercourse along and across the great navigable rivers of the continent."[65] In this guise Commissioner Walworth's solution represented "a virtual abrogation of the privilege of bridging navigable streams" in order to protect selfish steamboat interests.[66]

But steamboat navigation represented only the first step in the development of the Mississippi Valley. The river which provided the vast system of inland navigation also "obstruct[ed] commerce in many directions."[67] Commerce carried by railroads would "penetrate into every nook where population or production may require a highway."[68] Looking to the future, "the speed, regularity and capacity" of railroads would soon render them "the principal channels of inland commerce."[69] Accepting Pennsylvania's argument (and

Walworth's recommendation) would "condemn" the commerce of the Mississippi Valley "to perpetual obstruction or perpetual ferriage, wherever a navigable water-course interposes."[70] According to the defense attorneys, the greater good would be best served by a decision in favor of their clients.

The first section of the defense's factual argument addressed considerations of the geography of the Ohio Valley and the conditions of navigation along the Ohio River, and showed how the design of the Wheeling bridge accommodated both. According to the bridge company in the past "few places" in the New West had afforded sufficient "accumulation of trade and travel" to "justif[y] so great an outlay to overcome the obstruction offered by a river."[71] Because the Ohio River flowed from north to south, "the main lines of artificial highways" had to cross the river to connect the seaboard with the West.[72] Railroads from the East and Midwest were already concentrating at Wheeling and the Wheeling bridge was "destined to become an essential link in two of the most extensive systems of railways."[73]

The defense also stressed that investors in the Wheeling bridge, conscious of their responsibility to protect navigation, had selected a bridge design which did not interfere with commerce on the Ohio River. Therefore, Pennsylvania erred in its first point (that the Wheeling bridge obstructed the natural Ohio-Mississippi waterway). "[M]ore than 200 steamboats," the bridge attorneys declared,

had passed more than 5,000 times "without the slightest inconvenience."[74] No witnesses had appeared to complain of injury to navigation "except persons connected with these Pittsburgh [and Cincinnati] packets" who testified to only six incidents of obstruction.[75] The bridge design also provided "absolute freedom of passage, without even the impediment of a single pier" to the "vast and valuable commerce" conducted by flatboats and rafts.[76]

The second section of the defense argument described steamboat navigation on the Ohio River and showed the inadequacy of Pennsylvania's "pretext of complaint"--that "half a dozen" steamboats could not pass the Wheeling bridge without lowering their chimneys. But those chimneys, the defense attorneys asserted, were of "such extravagant length that no others like them can be found in the world on vessels of similar size."[77] According to the defense in order for Pennsylvania's second point (that modification of the Pittsburgh and Cincinnati packets' chimneys was unreasonable) to carry, the complainant had to prove that tall chimneys were "indispensable" to steamboat operation.[78]

The fact that lower chimneys sufficed for 230 other vessels impugned such a proposition. Using the Keystone State as an example, the defense embarked on an extended analysis to show how much injury would be done by reducing the height of steamboat chimneys. A reduction in height of twenty feet reduced the speed of the Keystone State from ten to 9.9 miles per hour (or six to ten minutes over a voyage

of 100 miles).[79] The Wheeling bridge attorneys found it "difficult to imagine" that this "trivial inconvenience" could be "multiplied into a public or private injury."[80]

The defendants also attacked the impartial and expert character of the witnesses called by Pennsylvania and questioned their opinions on the efficacy of tall chimneys. The Wheeling bridge attorneys identified sixty of the complainant's witnesses as residents of Pittsburgh whose depositions constituted a "turbid stream of prejudice" against their clients.[81] They described other witnesses as "professors without practice, and practical men without science."[82] On closer examination the effects of increased drag, careening and fuel wastage destroyed the "slight degree of superior utility" which the defendants had conceded to tall chimneys.[83] Drawing on operational practices in Europe, along the Atlantic seaboard and the Mississippi River, the defense reiterated other expedients identified in depositions which increased steamboat speed and efficiency.[84] The defense concluded "whether we form a judgment merely from indisputable principles, or from general usage, or from the preponderance of opinion among practical, or among scientific men, there is no necessity whatever for chimneys . . . of greater altitude than those which are in common use on more than 200 vessels."[85]

The defense dismissed the complainant's fourth point (that the bridge obstructed sailing vessels) with the comment that the assertion "might well discredit the entire

suit."[86] With regard to sailing vessels built above the Wheeling bridge and towed by steamboat to the Gulf, the defense gleefully demonstrated by the complainant's own proof that it was cheaper to tow the boats with masts unshipped and erect them afterwards, than to tow them with masts shipped.[87]

Turning from the points which Stanton had identified as showing the existence and extent of obstruction, the defense attorneys proceeded to dispute the complainant's points associated with the adequacy of Commissioner Walworth's solution. The larger picture of commerce in general as opposed to steamboat commerce refuted the complainant's third point (that the Wheeling bridge represented the potential of future bridges to destroy "commerce"). After all, the defense declared, 230 steamboats plus all of the flatboats and rafts engaged in Ohio River commerce continued to pass and repass the Wheeling bridge. Further, argued the bridge company attorneys, "it must be apparent" from the legislation and expert opinions of engineers that commerce "requires bridges over our navigable rivers."[88] From this perspective the additional elevation proposed by Walworth "would probably compel" the public "to suffer from the obstruction of their commerce and intercourse, by the rivers."[89]

Continuing this line of reasoning and reverting to earlier sections of their argument led the defense to reject the complainant's sixth point (that the bridge should have

been built higher or multiple steam ferries used) and Walworth's recommendation. Commissioner Walworth had used the Cincinnati to establish the parameters for adequate bridge design. But the Cincinnati, according to the evidence, had "the highest chimneys and almost the slowest speed among the seven [P. and C. packets]."[90] By accommodating the height of the inefficient Cincinnati on water stages of thirty to thirty-five feet, the commissioner required a bridge elevation of 120 feet above low water at Wheeling. Where floods "of ordinary occurrence [sic]" were higher, the bridge company attorneys reasoned, bridge elevation must increase commensurately.[91] The "serious embarassments that must be imposed upon the commerce of the country" by following Walworth's design criteria could be demonstrated by conditions at Cincinnati.[92] Walworth's guidelines would require that the approaches to the proposed Cincinnati bridge be elevated 112 to 117 feet above the river banks. According to the defense such an elevation amounted "to total prohibition of a bridge at that point."[93]

"The immense difficulty" of meeting these design constraints could be illustrated "by practical examples at the thrifty city of Pittsburgh" where bridges had been built "uniformly about forty feet above low water."[94] And the 1846 Pennsylvania charter for a bridge across the Ohio River immediately below Pittsburgh had required only a principal span of 750 feet "across the steamboat channel" at least "seventy feet above a ten feet stage of water."[95] Since

Pennsylvania of its own volition had selected such a configuration as acceptable for protecting the interests of navigation, the defense raised the implied question of how could the complainant demand a greater elevation for bridges chartered by other states.

The defense attorneys also addressed the adequacy of Walworth's solution for the needs of future navigation. The complainants had claimed that chimneys would continue to increase in height. The defense denied the contention on the grounds that increasing fuels costs would promote engine and chimney design "a little more creditable to science."[96] Future development would show that chimneys over eighty feet had been "contemporary only with this suit."[97] The bridge company attorneys predicted passengers in less than a year would be able to travel by railroad from Cincinnati to Pittsburgh in twenty hours and "soon after" from Cincinnati to Wheeling in ten hours.[98] "In a like brief period" railroads would connect Atlantic cities to the Ohio River.[99] Completion of these arrangements would cause "a revolution" in steamboat navigation on the Ohio River as passengers would shift to the railroads and steamboats would be reconfigured for freight carriage.[100] Fast packets like the P. and C. line would disappear from the upper river. The complainant's assumption that the Wheeling bridge would cause "conjectural inconvenience to future navigation" was unfounded.[101]

The final section of the defendants' presentation returned to legal argument and in the process condemned the complainant's case on the grounds of the absence of proof on point five (that the property of Pennsylvania invested in the Main Line had suffered injury because of the bridge). Regarding the question of jurisdiction the defense attorneys argued that they had already shown the Wheeling bridge was not a public nuisance in fact and would proceed to show that it was not a public nuisance in law. No indictment could be maintained against it in Virginia courts because the state had "legalized it;" nor could an indictment be maintained in federal courts because Congress had not forbidden it.[102] Defense counsel were "unable to conceive how" the bridge could be a private nuisance to Pennsylvania because that state "ha[d] no peculiar right to use the Ohio at that place" and because obstruction of a navigable stream like the Ohio River "must be a public nuisance; or if not, it is a lawful obstruction."[103]

In addition the bridge attorneys believed a court of equity was "not the proper forum" for the case since equity courts assumed jurisdiction only "after long hesitation and extreme reluctance" and exercised their authority as a matter of "great delicacy."[104] Hearings in equity were "never granted" unless a trial at law had been held, or unless the issue was "a plain case of nuisance." Neither was the case in the matter before the Court.

But assuming for the moment that the case was properly before a court of equity, the plaintiff still could not maintain the suit "unless he avers and proves some special injury."[106] The defense asked "has such a proof been made here?" And answered "none; absolutely none."[107] In the year between the completion of the bridge and the close of testimony "neither the revenues nor the commerce of Pennsylvania" had been shown by the complainant "to have been lessened one cent."[108] Reports of the Canal Commissioners "exhibit[ed] a steady increase of the tolls upon her great canal."[109] Even the boats of the P. and C. packet line, supposedly obstructed by the bridge, according to "their own officers" had conducted "regular and profitable business" over the period.[110]

The bridge company attorneys conluded that their clients had been entrusted by the Virginia legislature "with the important function of erecting a bridge, for public accommodation, over a navigable stream."[111] That project had been "cheered . . . with universal approbation."[112] Their clients had produced a work of "national utility" and had left the "privileges" of navigation "undiminished."[113] Therefore the bridge company asked the Court to maintain their bridge as "a durable monument of their enterprise" on behalf of public need.[114]

George Harding, an attorney for the complainant, rebutted the defendants' factual argument with a brief exposition of the "scientific and practical principles"

involved in steamboat operation on the Ohio River.[115] He argued that the defense's presentation was "an attempt to re-establish positions which have been contradicted by their principal witnesses" and that the conclusions thus introduced by the defense appeared "without the shadow of authority in the evidence."[116]

The defense had merely shown that a shorter chimney would produce more steam from a pound of coal than a taller chimney. But according to Harding "it is not contended by us" that the tall-chimnied packets were models of "economical combustion."[117] Rather, the complainant placed "higher consideration" on the P. and C. boats as "models of the rapid conversion of fuel to power, with economy of space and weight."[118] The supposed "defects" of design enumerated by defense witnesses, the complainant's attorney reasoned, must be "the consequence of very wide spread [sic] error" since steamboatmen "throughout the United States" followed "the same general principles of construction."[119] Harding concluded on the sarcastic note that these "long standing" defects had curiously not been discovered "until the date of the Wheeling bridge."[120]

Harding's critique of the bridge company's presentation underscored the differences between the complainant's and the defendants' concepts of contemporary steamboat navigation. The defense insisted that their bridge accommodated the vast majority of steamboats (over 200) on all stages of water. The complainant maintained that at

high water the bridge blocked the P. and C. packets which carried three-fourths of the passengers and one-half of the freight on the upper Ohio River. To the defense these few boats could be readily adapted to the bridge; to the packet operators the modifications were unreasonable.

Extending their arguments to future conditions on the river widened the gap between the views of the parties. Pennsylvania envisioned many more boats emulating the dimensions and operating practices of the P. and C. line. The bridge company foresaw high fuel costs and increasing railroad competition inducing boat owners to resort to smaller, more efficient boats.

Both parties, however, found Walworth's remedy inadequate. To the complainant he had failed even to provide for present boats on high waters. To the defense he had based his design on the height of the atypical Cincinnati.

The arguments of both parties in 1851 also resumed the constitutional question raised by one of the complainant's attorneys (Robert James Walker) in 1850--whether Virginia had violated the commerce power of Congress. According to Pennsylvania's attorneys the bridge, by blocking steamboats, regulated commerce and in so doing encroached on Congress' power. Virginia's charter for the bridge, therefore, was unconstitutional. But attorneys for the bridge company contended that both the charter and the bridge were constitutional exercises of the reserved power of the state

to provide internal improvements. So long as such activities did not conflict with Acts of Congress they were valid. And since Congress had not defined obstructions in navigable waterways the charter and the bridge could stand.

The close of arguments in 1851 marked a turning point in the bridge case. Between 1849 and 1851 the collection of evidence had consumed the energies of counsel for the parties and the Court's commissioner. Three hearings (1849, 1850 and 1851) had exhausted nuisance law arguments on both sides. Beginning in early 1852 the Court's deliberations would turn on the constitutional issues of orignal jurisdiction and the commerce clause.

Notes

1. 13 Howard 552-553.
2. Ibid. 553.
3. Ibid.
4. Ibid. 555. Quoted material from the Wheeling and Belmont Bridge Charter, passed March 14, 1847.
5. Ibid.
6. Ibid. 556.
7. Ibid. 553-558. Among the other matters excepted: that the commissioner had failed to hear all of the evidence; that he had hired Edwin F. Johnson as engineer, who had been determined "unfit" for the position and proposed to pay him; that the commissioner had "unnecessarily increased the expenses incurred under the order of reference to an enormous extent;" and that the parties had had no opportunity to examine the engineer's report before the commissioner closed testimony.
8. Pennsylvania, Complainant, State of Pennsylvania v.

Wheeling and Belmont Bridge Company: Complainant's Brief of the Pleadings and Evidence, Commissioner's Report and Exceptions (Pittsburgh, PA: William S. Haven, 1851); and Edwin M. Stanton, Argument for the Complainant in the Case of the State of Pennsylvania v. the Wheeling and Belmont Bridge Company, and Others (Philadelphia: Brown's Steam Power Book and Job Printing Office, 1852).

9. Stanton, Argument, 4.

10. Ibid. 5.

11. Ibid. 7.

12. Ibid. 8. According to the witnesses quoted in Complainant's Brief, 16, the statistics of the P. and C. boats should have been 200 passengers and 100 tons of freight for 30 round trips each year, representing three-fourths of the travel and one-half of the trade "during the time that those boats run" and between the points of Pittsburgh and Cincinnati. Assuming that during the remaining twenty-two weeks of the year only half as much traffic moved on the river reduces the portion of traffic carried by the P. and C. boats to about one-half of the passengers and one-third of the freight between Pittsburgh and Cincinnati.

13. Ibid. 6.

14. Ibid.

15. Ibid. 8.

16. Ibid. 9.

17. Ibid. 11-14.

18. Ibid. 10-11.

19. Ibid. 15.

20. Ibid. 18.

21. Ibid. 20.

22. Ibid.

23. Ibid. 23.

24. Ibid.

25. Ibid. 24.

26. Ibid. 25.

27. Ibid.

28. Ibid.

29. Ibid.

30. Ibid. 27.

31. Ibid.

32. Ibid.

33. Ibid. 30.

34. Ibid. 28.

35. Ibid.

36. Ibid.

37. Ibid. 28-29.

38. Ibid. 29.

39. Ibid.

40. Ibid. 32.

41. Ibid. 34.

42. Ibid.

43. Ibid. 35.

44. Ibid.

45. Ibid. 8.

46. Ibid. 36.

47. Ibid. 37.

48. The other boat detentions itemized in the Complainant's Brief were clearly accidents resulting from pilot error.

49. Stanton, Argument, 6.

50. Based on the comparison of dates of obstruction identified in the Complainant's Brief, 56-63, and the stages of water recorded at Wheeling on those dates, Reuben Hyde Walworth, Order of Reference of the Supreme

Court of the United States in the Case of the State of Pennsylvania, Complainant, against the Wheeling and Belmont Bridge Company and Others, Defendants, with the Proofs Taken . . . (Saratoga Springs, NY: G.F. White, 1851), 335-379, (hereafter cited as Walworth).

51. The Reports of the Secretaries of War quoted by Stanton indicated that Congress should consider construction of a naval yard and depot on the western waters, Santon, Argument, 15-18. Stanton construed these general recommendations as specific sanctions for Pittsburgh boat construction.

52. Stanton, Argument, 36.

53. Ibid. 36-37.

54. The only extant record of the defense argument is Charles W. Russell, Argument for the Defendants in the Case of the State Pennsylvania v. the Wheeling and Belmont Bridge Company and Others (Philadelphia: John C. Clark, 1851). The report is signed and dated November 1, 1851. Since Stanton's argument is dated 1852, it was apparently printed subsequently.

Although Russell authored the printed argument, and Reverdy Johnson appeared to argue before the Supreme Court (National Intelligencer, December 20, 1851), Alexander H. H. Stuart forwarded copies of "an argument" to the Supreme Court (Stuart to Thomas Carroll, Clerk of the Court, November 26, 1851, U. S. Supreme Court, Pennsylvania v. Wheeling and Belmont Bridge Company, Record Group 267, National Archives). I have chosen to assume that the printed argument which survives represents the joint effort of these three attorneys.

55. Russell, Argument, 37, 38.

56. Ibid. 39.

57. Ibid.

58. Ibid. 40.

59. Ibid. 44.

60. Ibid. 44-45.

61. Ibid. 45.

62. Ibid. 46.

63. Ibid. 47.

64. Ibid. 5-6.

65. Ibid. 6.

66. Ibid. 166.

67. Ibid. 7.

68. Ibid.

69. Ibid.

70. Ibid. 8.

71. Ibid.

72. Ibid.

73. Ibid. 12.

74. Ibid. 15.

75. Ibid. 64.

76. Ibid. 153.

77. Ibid. 89, 15.

78. Ibid. 67.

79. Ibid. 86.

80. Ibid. 89.

81. Ibid. 6n.

82. Ibid. 72.

83. Ibid. 89, 90-94.

84. In addition to mechanical production of artifical draft and reconfiguration of furnaces and chimneys, the defense also stated that increased draft could be "so readily supplied" by "a little more frequent use of a poker" as by "an enormous stack of sheet-iron." Ibid. 127.

85. Ibid. 118.

86. Ibid. 165.

87. Ibid.

88. Ibid. 29.

89. Ibid.

90. Ibid. 17, 138. The fastest P. and C. packet, the Buckeye State, had chimneys ten feet shorter but one foot larger in diameter than the Cincinnati.

91. Ibid. 17.

92. Ibid. 25.

93. Ibid. 27.

94. Ibid. 22. Pittsburgh's bridges were built at grade.

95. Ibid. 24-25.

96. Ibid. 146.

97. Ibid. 163.

98. Ibid.

99. Ibid. 164.

100. Ibid.

101. Ibid. 164-165.

102. Ibid. 168.

103. Ibid. Quoting Georgetown v. Alexandria Canal Company 12 Peters 97.

104. Ibid. 169.

105. Ibid.

106. Ibid. Quoting Georgetown v. Alexandria Canal Company 12 Peters 99.

107. Ibid. 170.

108. Ibid. 171.

109. Ibid.

110. Ibid.

111. Ibid. 176-177.

112. Ibid. 177.

113. Ibid.

114. Ibid.

115. George Harding, Argument for the Complainant in the Case of the State of Pennsylvania v. Wheeling and Belmont Bridge Company in Support of the Commissioner's Report upon the Necessity and Utility of the Steam Packet Chimneys now used on the Ohio River (Washington, 1851), 4. Harding (who was Justice John McLean's son-in-law) was a leading patent lawyer of the Taney era and had represented the Morse interests in the telegraph patent disputes of the late 1840s and early 1850s. See Carl B. Swisher, The Taney Period, 1836-1864, vol. 5 of History of the Supreme Court (New York: Macmillan, 1974), 496, 500, 507-509.

116. Ibid. 9.

117. Ibid. 8.

118. Ibid.

119. Ibid. 14.

120. Ibid.

CHAPTER X
EXERCISING "A BROAD AND UNDEFINABLE DISCRETION"

The case presented by the arguments of counsel and Walworth's report centered on the factual matter of obstruction in the context of nuisance law, but also raised important constitutional questions about state commerce power and the jurisdiction of the Court. In 1850 similar testimony and arguments had led the justices to refer the matter to Commissioner Walworth, but the Court had not issued an opinion on the merits of the case at that time.[1] As the justices retired to deliberate in late December, 1851, both the complainant and the defendants looked back to the Order of Reference and found reason to hope for a favorable decision.

The Court's referral in 1850 acknowledged that Pennsylvania had sufficient interest to bring suit. Pennsylvania's standing appeared to settle both the matter of jurisdiction and the claim of obstruction.[2] But the language of the referral sustained the bridge company on the question of state power with regard to commerce. The Court had asked Walworth (if he found the bridge obstructed river traffic) to suggest alterations to the bridge "consistent with the continuance of the same across the river."[3] Surely "continuance" of the bridge implied the Court's acceptance

of Virginia's ability to charter the bridge company. Given these ambivalent attitudes toward the positions of the parties, a divided decision in the Wheeling Bridge case seemed inevitable.

Nine justices composed the Court which heard the arguments of counsel in late December, 1851. Only Justice Benjamin R. Curtis, who had recently filled the vacancy caused by the death of Justice Levi Woodbury, had not heard the 1850 arguments.[4] Yet the potential of a different split (from 1850), was immediately apparent to the newest member of the Court. In a letter to George Ticknor on December 27, 1851, Curtis wrote that the Wheeling Bridge case "involved constitutional questions on which the Court are likely to divide," although so far the Court had been "very harmonious" in their opinions.[5]

Justice Peter V. Daniel, writing to his daughter two weeks later, shared Justice Curtis' sense of both the importance and the divisive nature of the issues in the case. Daniel wrote he was "more concerned in this matter as I foresee that I am to be overborne in a just cause."[6] He apologized for his tardy correspondence as he spent his evenings "in examining the record of a thousand pages" of the Wheeling Bridge case.[7] Two weeks later Justice John Catron wrote James Buchanan predicting both a split on the question of jurisdiction and a division among the majority on the appropriate remedy.[8] Newspapers also reported a split decision in advance of the official announcement.[9]

Justice John McLean announced the decision on February 6, 1852 with Chief Justice Roger B. Taney and Justice Daniel dissenting.[10] The Court divided on three issues: the question of the original jurisdiction, the question of whether the commerce power applied, and the question of whether the matter of nuisance was properly before the equity side of the Court.

Justice McLean, writing for the majority of the Court, considered the matter of original jurisdiction to have been "sustained by the entry of an order of reference" to Walworth in 1850.[11] He justified that determination by referring to Article 3, Section 2 of the Constitution which gave the Supreme Court jurisdiction in "controversies between a state and citizens of another state." According to McLean the Court in the earlier decision had recognized that Pennsylvania's investments in the Main Line provided sufficient proprietary interest to bring suit before the Supreme Court.

Chief Justice Taney and Associate Justice Daniel disagreed with the majority. To Taney Pennsylvania's right to sue "merely changes the forum and does not change the law of the case or the rights of the parties" which would be the same as if the case had been brought in the federal circuit court of Virginia.[12] But to Taney, the Supreme Court could not exercise jurisdiction "without some law prescribing the mode of the proceeding."[13] And neither the Constitution nor federal statutes provided such procedures.[14]

Justice Daniel disputed the question of jurisdiction not on the absence of procedures, but on the nature of the parties. He reminded his colleagues of his objection to the Order of Reference in 1850 because it had then seemed to him "a premature and foregone conclusion upon facts and legal positions entering essentially into the nature of the controversy."[15] The "only possible cognizance" by which the Supreme Court could consider the case was Article 3 Section 2 of the Constitution.[16] But Daniel did not believe that Pennsylvania had adequately met the definition of "party" implied in the section. According to Daniel, that term applied "to persons sustaining a direct or real interest or right in any pending litigation;" the term could not be extended arbitrarily or invoked in the absence of legal or equitable claims upon the subject of litigation.[17] Daniel found Pennsylvania had no title in the Ohio River within the limits of Virginia and no property in the steamboats which plied the river.

The allegation of injury to the revenues of internal improvements, "many miles remote" from the Wheeling bridge, failed to convince Daniel because the complainant had "not even intimated" in the pleadings that the Main Line had been "obstructed or rendered in any respect less fitted for transportation or in any way impaired by the erection of the Wheeling bridge."[18] Daniel concluded that "the shadowy pretext" of injury based on "things not susceptible of calculation or estimate" could not be the foundation of

legal right.[19] The injuries complained of by Pennsylvania, Daniel declared, were injuries to her citizens and to individuals.

Daniel also disagreed with Justice McLean on the second question before the Court which related to the federal commerce power. McLean's opinion on this issue, like his opinion on the first question, derived the Court's ability to act from the intent of the Constitution and Acts of Congress. In the first question the Constitution enabled the Court to hear cases between the states. With regard to the commerce power, McLean stated that the Constitution enabled Congress to regulate commerce among the states, and Congress had accordingly regulated commerce on the Ohio "by licensing vessels, establishing ports of entry, imposing duties upon masters and other officers of boats, and inflicting severe penalties for neglect of those duties."[20] Virginia had also recognized that the Ohio River was a common highway when the state had entered into a compact with Kentucky and jointly declared that the Ohio River "shall be free and common to the citizens of the United States."[21] Congress had subsequently sanctioned the compact making it the "law of the union."[22]

McLean acknowledged that Congress had not declared "that a state, by construction of bridges, or otherwise, shall not obstruct the navigation of the Ohio," but the enrollment and licensing act had regulated commerce on the river.[23] McLean pointed out that in the case of Willson v.

Blackbird Creek Marsh the Chief Justice, speaking for the Court, had doubted "whether small creeks, which the tide makes navigable a short distance, are within the general commerce regulation," and had stated that in matters of doubt the Court should "follow the lead of Congress."[24] McLean declared "Congress led in regulating commerce on the Ohio, which brings the case within the rule above laid down."[25] And in Virginia's 1847 charter for the bridge company the legislature "with scrupulous care" had guarded the rights of navigation and honored the terms of the agreement with Kentucky.[26] The bridge company, violating the Virginia charter, had obstructed the "free use of a license granted under an Act of Congress."[27]

Taney disagreed with McLean both with regard to the general intent of Congress' regulation of commerce and with regard to the specific interpretation of Willson v. Blackbird Creek Marsh. Historically, every independent nation had "exclusive jurisdiction" over navigable waters "lying within its territorial limits."[28] Before the adoption of the Constitution Virginia enjoyed the absolute right to regulate commerce, and to build piers, wharves and bridges in its waters. With the adoption of the Constitution Virginia surrendered to the general government the power to regulate commerce, but retained "absolute territorial jurisdiction" over navigable waters "in all other respects."[29] Virginia had authorized the Wheeling bridge and "Congress have acquiesced in it."[30] If Congress

had acquiesced, Taney asked, "how can the Court, to whom the power is not granted, undertake to regulate it, and declare this bridge an unlawful obstruction?"[31]

Differing from the majority of the Court, Taney declared that the Virginia-Kentucky compact provided no justification, since it did not deprive Virginia of the power to regulate the river or to authorize structures in it. Even if the compact could be so construed, then the proceeding to enforce it should be a breach of contract suit. The Act of Congress which assented to the compact did not make the United States a party to it, but "simply" declared Kentucky's boundaries and designated the effective date of statehood.[32]

The complainant, according to Taney, had cited Gibbons v. Ogden to support the proposition that the act for enrolling and licensing coasting vessels gave vessels enrolled and licensed "the right to navigate the river free from obstructions."[33] According to the Chief Justice "neither the point nor the principles" decided in Gibbons v. Ogden applied in the Wheeling Bridge case.[34] In the earlier case New York had granted to certain persons the "exclusive privilege" of navigating state waters "with boats moved by fire or steam."[35] The Court had held this state grant of exclusive privilege unconstitutional on the grounds that vessels enrolled and licensed for the coasting trade had the right to navigate any of the navigable waters of the United States. Gibbons v. Ogden did not involve the authority of a

federal court to declare an obstruction in a river or to treat it as an offense against the United States, which was the question currently before the Court.

In the Wheeling Bridge case, Taney reasoned, if the bridge was an obstruction, Virginia's own citizens navigating the Ohio River were "equally disabled."[36] Such a point had been decided by the Supreme Court in Willson v. Blackbird Creek Marsh. In that case an obstruction in a navigable creek was "supposed to abridge the rights of those accustomed to use it."[37] Yet the Court had held that as Congress "had passed no law to control state legislation over these small navigable creeks" the state law authorizing the obstruction was constitutional.[38] Since the enrolling and licensing act was still in force, Taney believed that the result of Gibbons v. Ogden and Willson v. Blackbird Creek Marsh gave to enrolled and licensed vessels the right to navigate public waters "wherever they find them navigable."[39] The Wheeling Bridge case offered "no difference in principle," and the justice contended "the decision should be the same."[40]

Although the complainant had raised the distinguishing point that a port of entry had been established on the Ohio River above the bridge, Taney did not believe the point pertinent. In Willson v. Blackbird Marsh Creek "it was the right that was in question," and according to Taney "the right was the same whether the navigable water was narrow or wide, or used by only a single vessel, or frequented by

hundreds."[41] Summarizing his points on the commerce power, Taney concluded that he could not perceive how "the mere grant of power to the Legislative Department . . . can give to the judicial branch the power to regulate what shall, and what shall not be regarded as an unlawful obstruction."[42]

Justice Daniel agreed with Taney that McLean's strategy "to affirm merely the competency of Congress to legislate upon it [commerce]" was not sufficient "to draw within our cognizance the subject of this cause."[43] Like Taney, Daniel questioned how the federal courts, "limited and circumscribed by the Constitution and by the laws which have created them" could "assume to themselves the authority and functions of the legislative department, . . . and undertake to supply the omissions of that department?"[44] The opinion just announced, according to Daniel, represented "virtually an act of legislation" and rejected the doctrine of the Court "most expressly ruled" in Willson v. Blackbird Creek Marsh.[45]

The "capital features" of Willson v. Blackbird Creek Marsh, according to Daniel, were "strikingly similar" to the Wheeling Bridge case.[46] In both cases the watercourses were navigable and within the jurisdiction of a state, the alleged obstruction had been created by state legislation "in exercising the power of internal improvement," and the right of passage had been based on the federal coasting license.[47] Like Taney, Daniel gave short shrift to the complainant's distinguishing point (Pittsburgh's status as a

port of entry). The "mere" designation as a port "at which merchandise may be landed subject to the revenue laws of the United States" was, according to Daniel, one of the "absurdities" of the complainant's argument.[48] The present decision should parallel Willson v. Blackbird Creek Marsh in which the Court had held that state action was not repugnant to Congress' power to regulate commerce "in its dormant state."[49]

On the third question raised by the Wheeling Bridge case, the Court divided over whether a public nuisance existed, whether Pennsylvania had suffered injury as the result of the public nuisance, and whether the injury warranted a remedy by a court of equity. McLean, relying on Walworth's report, found for the majority "that the bridge constitutes a nuisance" as "ascertained by measurement."[50] Pennsylvania had demonstrated injury by witnesses who "generally" testified that the obstruction of steamboats by the Wheeling bridge "must affect injuriously the [state's] revenue from . . . the public works, as it would divert the transportation of goods and passengers" from the Pennsylvania improvements "to the northern lines through New York."[51] This injury was "of a character for which an action at law could afford no adequate redress," because it occurred daily, would require numerous prosecutions and was difficult to measure.[52]

McLean responded to the defendants' objections to the "extraordinary interposition" of a court of equity by

discussing the authority of the Supreme Court to act and the restrictions imposed on that action.[53] Citing Article 3, Section 2 of the Constitution "that the judicial power shall extend to all cases, in law and equity," McLean found that the Court could intervene in equity matters.[54] This jurisdiction, however, had been conferred on federal courts with the limitation "that suits in equity shall not be sustained . . . in any case where plain, adequate and complete remedy may be had at law."[55] Pennsylvania's case rested "on the ground of a private and irreparable injury" wrought on the state's revenues by the Wheeling bridge.[56] According to McLean the case of the City of Georgetown v. the Alexandria Canal Company had decided that a public nuisance could also be a private nuisance where "a special or irremediable mischief" was done to an individual.[57] The objection that the complainant's right should be established by a trial at law was also met by Georgetown v. Alexandria Canal Company, where the Court had said that chancery would protect without a trial at law a right which had been long enjoyed. In the present case the Court considered Walworth's report "of the same force as the verdict of a jury."[58] McLean found it difficult to imagine "a stronger case for the extraordinary interposition of a court of chancery."[59]

Taney believed that it was incumbent on Pennsylvania not only to show nuisance, but also to demonstrate the "violation of some law which this Court has the right to administer."[60] To abate a public nuisance "as the law now

stands" forced the Court to "exercise a broad and undefinable discretion without any certain and safe rule to guide us."[61] According to equity principles the Court should consider "the general convenience of the public in the travel and trade across the river as well as on its waters."[62] Whether the bridge was a nuisance or not depended "upon whether it is or is not injurious to the public," and the "immense mass of testimony" in Walworth's report had been directed to this point.[63] To Taney a case "could hardly be imagined" where the testimony "of men of high character and undoubted skill and knowledge" so conflicted.[64] And after two year's experience the injury to Pennsylvania had not been found "serious enough to lessen the navigation and commerce of the river."[65] Walworth's report itself represented an "insuperable objection" to proceeding in equity, where the "settled rule" stated that a court "will not interfere by injunction where the evidence is conflicting and the injury doubtful."[66] The Wheeling Bridge case, according to Taney, was "precisely" the sort of case where the Court should require the complainant to establish his right at law.[67]

Taney also objected to the majority decision because Pennsylvania had failed to meet other limitations on chancery jurisdiction. In the opinion of the Chief Justice Pennsylvania had not demonstrated an "immediate and irreparable" private injury from a public nuisance.[68] Until "the public, by its proper officer" brought or joined suit,

the Court should refuse to destroy a valuable bridge merely to guard against the "possibility" of an "inconsiderable" loss by Pennsylvania.[69] Taney pointed out that in the case of Georgetown v. Alexandria Canal Company the Court had decided that "a danger of irreparable mischief" could be abated as a public nuisance only where the attorney-general was a party to the action.[70] In the present case Pennsylvania did not meet the conditions identified by the Court in Georgetown v. Alexandria Canal Company.

Justice Daniel considered "upon the plainest principles of common sense" that no act which conferred a benefit on the public "can be denominated a nuisance."[71] And for a nuisance to exist at all it "must be an offense against the public, or more properly against the government sovereignty."[72] Walworth's report had not proved the fact of nuisance because he had not assessed both the positive and negative attributes of the bridge. As the report showed, Walworth had "rejected all evidence, tendered by the defendants, to prove the usefulness and importance of the bridge."[73] To Daniel the report showed that Pennsylvania's "alleged ground" of injury had been "founded upon the injury inflicted by the bridge upon the owners of certain steam packets and upon the trade of Pittsburgh."[74] The facts presented did not prove either nuisance or injury.

With regard to matters of nuisance law, Daniel also dissented from the majority opinion. He cited for support The People v. the Rensselaer and Saratoga Rail Road Company

(1836), in which a New York court had stated "if the wants of society require" bridges, the legislature could authorize them, even if by building bridges they placed obstacles and impediments in the public waterway.[75] Daniel also "confidently" appealed to "the language of the judge, by whom the decision of this Court has just been announced."[76] According to Daniel in Palmer v. Commissioners of Cayuga County (an application for an injunction to prevent a draw bridge over the Cayuga River "upon the ground that it would obstruct the navigation of the river") Justice McLean had announced that a draw bridge was only a "momentary" obstruction to the navigation.[77] McLean had found that the bridge "may be very important in the general intercourse of the community," and he entertained no doubt "as to the power of the state to make the bridge."[78] The general state powers to provide for public convenience could be exercised when they did not "infringe upon the federal powers."[79] Therefore McLean had arrived at what Daniel considered the "unanswerable conclusion" that nuisance depended solely on the character of the act complained of.[80]

With few exceptions character could only be ascertained, according to Daniel, "by the established proceeding of the common law in relation to all questions of fact, a trial by jury."[81] The Supreme Court's decision in Georgetown v. Alexandria Canal Company only showed the Court's willingness to grant an injunction without a trial at law when the complainant proved "the admitted or

notorious character of the act" and "the irreparable character of the injury."[82] Daniel did not believe that Pennsylvania had met these conditions in the Wheeling Bridge case.

The majority of the Court, however, determined that the bridge obstructed the navigation of the Ohio River and injured Pennsylvania as the proprietor of public works. Referring to Walworth's report, the Court stated "that the obstruction to the navigation of the river may be removed by elevating the bridge," and the justices proceeded to investigate "the lowest point of elevation which will secure this object."[83] Walworth had recommended raising the bridge to 120 feet. Justice Catron wrote to James Buchanan that in the justices' conference regarding the case, he had "refused to raise [the bridge] over twenty feet higher . . . in effect bringing steamboat chimneys to eighty feet above the water."[84] Justice Grier, according to Justice Catron, had fought "with the stubbornness of a bull" for "a thirty feet rise, and 120 feet above low water."[85] In the midst of the other justices' "half formed and divided opinions" Catron boasted he had "<u>forced</u> the majority to my 110 feet level."[86]

"On a full view of the evidence" the Court determined that an elevation of 111 feet above low water for a level span of 300 feet over the channel "will be sufficient."[87] According to the majority this configuration "will enable those [steamboats] whose chimneys are eighty feet high to pass under the bridge when the water is thirty feet deep

from the ground . . . leaving . . . two feet [clearance]."[88] The Court did not "deem it necessary" to provide for floods "which seldom occur" and which "necessarily suspend" business on the river.[89] If the bridge company failed to adopt the Court's design "or some other plan . . . which shall relieve the navigation from obstruction" by February 1, 1853, "the bridge must be abated."[90]

The choice of 111 feet represented not only a compromise between justices who disagreed over adequate remedies (including justices Taney and Daniel who believed the existing ninety-two foot clearance was adequate), but also a reduction in Walworth's recommendation. Yet Walworth had made "no provision for a greater amount of headway should the future wants of travel and commerce upon the river require it."[91]

Both the complainant and the defendants had pointed to this weakness of Walworth's remedy in their arguments before the Court. According to Stanton and Harding, failure to recognize that future boats would have chimneys as high or higher than the Pittsburgh and Cincinnati packets would arrest technological development and ultimately injure river commerce. According to the defense attorneys the failure of Walworth (and the Court) to declare what height would accommodate the future developments of steamboats meant that even if their clients raised the bridge, there was no guarantee against subsequent suits, should advances in steamboat technology call for higher chimneys. Both parties

argued that the Wheeling Bridge decision would initiate a policy which would be more far-reaching than the simple settlement of the immediate conflict before the Court.

The justices were well aware that the effect of their decision would extend beyond the present parties. Chief Justice Taney in dissent recognized the importance of both land and water transportation for "the great public of the whole union."[92] He was "convinced" that the "detriment and inconvenience" to commerce on the river was "small and occasional only" while the "advantages which the public derive[d]" from the Wheeling bridge were "great and constant."[93]

The Chief Justice also considered the alternative of a drawbridge, but found that drawbridges offered no greater benefit to commerce because they were built "so near the water that vessels can only pass through a draw."[94] Such bridges "unquestionably" "impede[d] navigation."[95] When sailing vessels found the wind unfavorable for passing the draw, they were "often detained not only for hours, but for days."[96] According to the Chief Justice the courts of the United States had "never exercised jurisdiction over any of these obstructions, nor declared them to be nuisances."[97]

He concluded that he was unwilling to assume this "questionable jurisdiction" because Congress had "better means of obtaining information and "undoubted power over the whole subject."[98] The policy decisions involved in regulating either the types and heights of bridges or the

heights of steamboat chimneys were "too near the confines of legislation" for the Chief Justice.[99]

Justice McLean for the majority contrasted the needs of future land- and water-based commerce. McLean noted the defendants' counsel had predicted that soon railroads would concentrate "at Wheeling and other places on the Ohio" and as a result of their speed and safety would "take from the river the passengers and a considerable portion of the freight now transported by steamboats."[100] McLean agreed that in the future railroads would carry "a larger amount of commerce than that which is now transported on the Ohio."[101] But he did not accept the defense's conclusion that railroad development would cause commerce to shift away from the rivers. After all, the "river coast" of the United States extended for 25,000 miles--"a greater distance than the combined railways of the world."[102] And protection of river commerce was "by no means hostile to any other."[103] While railroad development "must be the desire of everyone," the "great thoroughfares, provided by a beneficent Providence, should neither be neglected or abandoned."[104]

But if obstructions like the Wheeling bridge "multiplied as these [railroad] crossways are needed," McLean feared "our beautiful rivers will, in a great measure, be abandoned."[105] Forty years of steamboat experience had produced remarkable improvements in steamboat design, speed and comfort. In limiting that development by allowing the Wheeling bridge to remain, the justice

lamented, "we close our eyes to one great source of our prosperity."[106] The western country "could have made but little advance" without the steamboat on its waters.[107] Had the bridge company built a drawbridge, the Court would not have "regarded [it] as a nuisance," since a drawbridge "would be safe and convenient" for the passage of steamboats, and was only a "slight" obstruction.[108] McLean recognized that the actual injury to Pennsylvania caused by the Wheeling suspension bridge was small, "compared to the magnitude of the subject" of bridging navigable waters.[109] The Court's decision in the matter would affect not only the two parties to the suit, but also "many millions of passengers and a commerce worth not less than $600 million."[110] The Court believed it would be "as unwise as it is unlawful to fetter" this vast commerce by allowing the Wheeling bridge to remain in its present configuration.[111]

Justice Daniel took another view of the issues. Throughout the case "a reigning fallacy" had been "assumed and urged upon the Court."[112] This fallacy, according to Daniel, "must be condemned as destructive to the extended commercial prosperity of the country."[113] The Court had assumed "that commerce can be prosecuted with advantage to the country, only by the channels of rivers, and . . . only through the agency of steamboats."[114]

But Daniel contended only commerce "in its infancy" was "of necessity chiefly confined to the channels of water-courses."[115] American commerce had expanded beyond "a

passage up and down the channels of water-courses, impractical for navigation for protracted periods.[116] The "obvious superiority" of the railroad in terms of speed, safety and "exemption from dependence upon wind or on the depth of water," gave it a "decided preference" in the development of commerce "unless arrested by the fiat of this court."[117] And Daniel warned, "once let it be proclaimed" that the rivers shall not be spanned by bridges "at the trivial inconvenience and cost of adapting . . . the chimneys of a few steamboats," and the "beneficial system" of railroads will be "broken up," and a system of "local monopoly and inequality" sustained.[118] Daniel believed the Court's "narrow policy" would "inhibit" future commerce.[119]

While the justices prepared their opinions, advance reports of their decision reached both parties. Charles Ellet, Jr., the engineer of the bridge and a major stockholder in the bridge company, wrote his wife on January 16, 1852 that "an apprehension is becoming pretty general" that the decision "will be against the right of Virginia to grant the charter."[120] Ellet expressed his concern that the decision would establish "a principle that will be disastrous to all the bridges that have been built across navigable streams."[121] On January 21 he received a letter from Reverdy Johnson "expressing apprehension of an adverse result--from information which he had just obtained."[122] On January 25 Edwin Stanton telegraphed to Harrisburg that the

Court had decided in favor of Pennsylvania and that Justice McLean would write the opinion.[123]

Two days before the decision was officially announced, Ellet wrote Johnson "that it is practicable to put a draw in the bridge," and asked him to suggest such a possibility to the Court.[124] On being informed of Ellet's proposal, the justices indicated their willingness to consider it, since "they were desirous of having the obstruction removed in a manner that shall be most convenient and least expensive to the Bridge Company."[125] On February 10 Ellet arrived in Washington to prepare his suggestions and on the 13th Johnson filed them with a motion that the Court "frame their decree [so] as to give the company the alternative authority of so elevating their bridge, or of providing a draw, either in the suspension bridge, or in the bridge on the west side of the island."[126]

The Court heard arguments on the motion on February 23 and 24. Stanton's argument for the complainant was "a flaming speech" aimed at showing the opportunism of the bridge company "slipping in" the suggestion of a draw.[127] Ellet wrote that Stanton was "piqued . . . by my heading him off here, in the flush of victory, by the suggestion of a draw, dovetailing in most beautifully with an expression of opinion by the Court."[128] According to Ellet, Stanton's diatribe on his conduct had made the engineer appear as "head devil of the West."[129] The complainant also objected to the Court's willingness to hear the defense motion, since

chancery rules did not provide for hearing additional evidence "with the view of modifying, in any respect, the decree."[130]

But the justices found consideration of such a motion "within the judgment of the court."[131] Although they admitted "great doubts whether a draw . . . can be constructed so as to afford 'a convenient and safe passage' for the steamboats that ply upon the Ohio," they were also "desirous of having the report of a practical and scientific engineer" on the subject.[132] Therefore the Court referred Ellet's suggestions to William J. McAlpine.[133]

McAlpine reported to the Court on May 8, 1852 that in "favorable" weather a draw of 100 feet would be "sufficient for the safe and convenient passage" of boats as large as the Pittsburgh and Cincinnati packets, but warned that on high stages of water and dark, stormy nights much larger openings would be required.[134] No draw could be constructed in either bridge "which would produce no delay and present no obstruction to the safe and convenient passage at all times" of the largest class of boats.[135] A 200-foot draw could be constructed in the western channel bridge for which McAlpine submitted a design and estimated cost of $33,000, but problems of the location of the eastern channel with regard to the slope of the cables of the suspension bridge made a similar proposal there "impracticable."[136] Removing the western channel bridge, coupled with removing the sand bar at the head of Zane's Island, offered alternative

passage when the height of the river would not permit tall boats to pass under the suspension bridge.

Attorneys for the complainant filed exceptions to McAlpine's report and the Court again heard arguments.[137] In late May Justice McLean delivered the opinion of the Court. He stated that nothing had been said in the Court's earlier decision "from which the inference could be drawn" that the right of bridging the river "was incompatible" with the right of navigation.[138] Had the bridge been constructed in compliance with its charter, so "as not to obstruct the navigation of the Ohio," the suit "could never have been instituted."[139] The defendants had not objected to the report of the engineer but had asked the Court to sanction it in general, "leaving open its details."[140] The Court agreed with the defendants that the report afforded "such a probability of success" as to entitle the defendants to try opening the navigation of the western channel in lieu of elevating the suspension bridge.[141] So long as the defendants provided at least a 200-foot opening, the Court would not consider a "delay of two or three minutes in passing the draw, and running the increased distance of the western channel" to constitute "a material objection" since the increased time was less than that "ordinarily consumed in landing or receiving a passenger."[142]

The Court's decree required the defendants to either elevate the suspension bridge to 111 feet or remove the obstructions in the western channel by February, 1853.[143]

Justices Taney and Daniel again dissented, but concurred in the modification of the decree because it relieved the defendants "from the operation of exactions" which the justices believed "unwarranted by law."[144]

The 1852 decision recognized Pennsylvania's right to sue as the proprietor of the Main Line Canal and declared the Wheeling suspension bridge a public nuisance. But the decision also acknowledged Virginia's ability to charter the bridge, so long as the state protected the rights of navigation. Pennsylvania had won the battle (the Wheeling bridge would have to be raised or removed), but lost the war (states could authorize bridges across navigable waterways). The Court had determined minimum height and width requirements for the Wheeling bridge, but it was unclear whether these dimensions would apply to other bridge sites.

In the 1852 Wheeling Bridge decision the Court recognized the importance of steam navigation on western waters to the economic vitality of the nation. Three other cases heard at the same term reinforced that importance. In Gennessee Chief v. Fitzhugh Taney found that the 1845 extension of federal maritime law to "the lakes and navigable waters connecting the same" was a valid exercise of the admiralty clause by Congress.[145] In the 1845 act Congress had responded to complaints of commercial and shipping interests of the Great Lakes region that lack of "a certain and defined legal jurisdiction over civil controversies, offenses and crimes" on the lakes had caused

great inconvenience.[146] While the collision of the propeller Genessee Chief and the schooner Cuba on Lake Ontario (which had brought review of the statute before the Court) and the language of the act appeared to limit the decision to the Great Lakes, commercial parties along the inland rivers watched with interest.[147] They had requested a similar expansion of federal jurisdiction consonant with the expansion of inland river commerce beyond the ebb and flow of the tide. In December, 1851 the Supreme Court also addressed this concern.

Fretz v. Bull, involving the collision of a steamboat and raft above tidewater on the Mississippi River, raised the question of whether the 1845 law could be construed to include all inland navigable waters.[148] Justice Wayne, writing for the majority, stated that the extent of admiralty jurisdiction had been decided in Genessee Chief and "was not limited by tide water, but was extended to the lakes and navigable rivers of the United States."[149] This endorsement of the extension of maritime jurisdiction provided consistent law for all shippers, shipowners and passengers.

Cooley v. Board of Wardens, also heard in December, 1851, presented a restatement of the issues related to Congress' commerce power.[150] Earlier cases had so perplexed the Court that opinions had proliferated. In Cooley the Court considered whether the state law providing for pilotage at the port of Philadelphia was a valid regulation

of commerce. The pilotage fees collected by the Board of Wardens resembled the taxes collected for impoverished immigrants which the Court had held unconstitutional in the Passenger Cases (1849). But while the state laws in question in the Passenger Cases had been found by five justices to be direct regulations of interstate commerce and therefore void, in Cooley the defense counsel pointed to a 1789 federal statute supporting state regulation of harbors.[151]

Justice Taney in the License Cases (1847) had found that the same 1789 statute could not give status to future state regulations of interstate commerce.[152] According to the prevailing judicial climate of the 1840s the Pennsylvania pilotage law was unconstitutional. Yet Justice Curtis, writing the majority opinion in Cooley, found for the Board of Wardens. Instead of considering the regulation of commerce in the context of the exclusiveness or nonexclusiveness of Congress' power, Curtis divided commerce into two categories and applied two rules. One category of commerce was by its nature national and would "admit of only one uniform system, or plan of regulation;" it required the exclusive control of Congress.[153] The other category was essentially local and required or permitted different regulations which in the absence of federal legislation to the contrary left the subjects to the states. The Cooley decision allowed states to regulate some aspects of interstate commerce (in this case harbor pilotage) but

potentially restricted their activities in regard to systems of transportation. Testing the Wheeling Bridge case against this formulation, obstruction of the Ohio River would "admit of only one uniform system" which was the exclusive domain of Congress.

The Wheeling Bridge decision settled the general outlines of state power to authorize bridges, but the Court had divided over how conflicting land and water transportation systems would adapt to each other. In Genessee Chief v. Fitzhugh, Fretz v. Bull and Cooley v. Board of Wardens the Court's decisions favored the expansion of steam navigation in the interior of the country, and the majority in Pennsylvania v. Wheeling and Belmont Bridge Company found the commerce clause of the Constitution and the act regarding federal coasting licenses sufficient to enable the Court to determine obstructions in rivers. But Chief Justice Taney disagreed. According to Taney the majority decision in the Wheeling Bridge case approached "too near the confines of legislation."[154] Without a specific Act of Congress defining obstructions, Taney did not believe the Court could act. It remained to be seen whether Congress shared the views of the majority or the Chief Justice.

Notes

1. Justice Daniel's minority opinion had found insufficient interest on the part of Pennsylvania to give the state standing (and therefore the Supreme Court did not have jurisdiction). He also believed the matter of nuisance should not have been brought before the equity side of the Court. 9 Howard 659.

2. Supreme Court jurisdiction was dependent on the nature of the parties to the suit: one state suing the citizens of another state. Pennsylvania's interest was dependent on the direct injury suffered by the Main Line tolls as a result of the obstruction of steamboats by the bridge. By not dismissing the case the justices seemed to have decided the questions of jurisdiction and obstruction in Pennsylvania's favor.

3. 9 Howard 658.

4. Justice Curtis had represented the New Bedford Bridge Company before Justice Woodbury in U.S. v. New Bedford Bridge, 1 Wood and M. 401 (27 Fed. Cas. 91).

5. Benjamin R. Curtis, Jr., A Memoir of Benjamin Robbins Curtis, 2 vols. (Boston: Little, Brown, 1879), 1: 165.

6. Peter V. Daniel to Elizabeth Daniel, January 8, 1852, Peter V. Daniel Papers, Alderman Library, University of Virginia.

7. Ibid.

8. Carl B. Swisher, The Taney Period, 1836-1864, vol. 5 of History of the Supreme Court (New York: Macmillan, 1974), 412.

9. According to Swisher, The Taney Period, 412n, both the New York Tribune (January 28, 1852) and the New York Journal of Commerce (date not listed) reported the decision ahead of the Court's announcement.

10. 13 Howard 518.

11. Ibid. 559.

12. Ibid. 579.

13. Ibid. 582.

14. Taney did not explain how his opinion of jurisdiction in 1852 differed from his opinion in 1850. Since he joined with the majority in 1850 to refer the matter to Walworth and yet found no jurisdiction in 1852, he apparently did not believe that the referral implied jurisdiction.

15. 13 Howard 593.

16. Ibid.

17. Ibid.

18. Ibid. 595.

19. Ibid. 596-597.

20. Ibid. 565.

21. Ibid.

22. Ibid. 566.

23. Ibid. 565.

24. Ibid. 566. Willson v. Blackbird Creek Marsh Company (1829) 2 Peters 245. In this case Willson's vessel, licensed under a federal coasting act, had rammed the dam built under state charter by the defendants to drain the marsh. The plaintiff argued that the creek was navigable and therefore a common highway.

The Court decided that state measures intended to enhance property and make healthful surroundings, so long as they did not conflict with the Constitution or federal law were valid exercises of the reserved power of the state.

25. 13 Howard 566.

26. Ibid. 565.

27. Ibid. 566. McLean's opinion found the bridge illegally built. He did not find the Virginia statute creating the bridge company unconstitutional.

28. Ibid. 582.

29. Ibid.

30. Ibid. 583.

31. Ibid.

32. Ibid. 583-584.

33. Ibid. 583.

34. Ibid. 584.

35. Ibid.

36. Ibid. 585.

37. Ibid.

38. Ibid.

39. Ibid. 586.

40. Ibid.

41. Ibid.

42. Ibid. 587.

43. Ibid. 599.

44. Ibid.

45. Ibid.

46. Ibid.

47. Ibid. 600.

48. Ibid.

49. Ibid.

50. Ibid. 568.

51. Ibid. 561-562.

52. Ibid. 562.

53. Ibid.

54. Ibid. 563.

55. Ibid.

56. Ibid. 564.

57. Ibid. 566. City of Georgetown v. Alexandria Canal Company (1838) 12 Peters 91. In this case the City of Georgetown on behalf of its citiznes claimed that the Alexandria Canal Company was building an aqueduct which

would block the navigation of the Potomac River and asked for an injunction to stop construction. The Alexandria Canal Company, incorporated by Congress, stood on their statutory authority to build the canal. The Supreme Court refused to grant the injunction on the grounds that the City of Georgetown had no standing.

The Court acknowledged that any obstruction of the Potomac River would be a public nuisance, but the proceeding against such an obstruction should be by indictment at law or information in equity brought by the attorney-general or in the case of an individual, on the showing of special injury.

58. 13 Howard 568-569.

59. Ibid. 562.

60. Ibid. 579.

61. Ibid. 587.

62. Ibid. 591.

63. Ibid. 579, 591.

64. Ibid. 587.

65. Ibid. 588.

66. Ibid. 587.

67. Ibid. 590.

68. Ibid. 588.

69. Ibid. 590.

70. Ibid.

71. Ibid. 605.

72. Ibid. 611.

73. Ibid. 604.

74. Ibid. 610.

75. Ibid. 607, quoting from The People v. the Rensselaer and Saratoga Railroad Company, 15 Wendell 113.

76. 13 Howard 607.

77. Ibid, quoting from Palmer v. Commissioners of Cayuga

County, 3 McLean 226.

78. 13 Howard 607.

79. Ibid.

80. Ibid.

81. Ibid. 608.

82. Ibid. 608-609.

83. Ibid. 578.

84. John Catron to James Buchanan, January 24, 1852, quoted in Swisher, The Taney Period, 412.

85. Ibid.

86. Ibid.

87. 13 Howard 578.

88. Ibid.

89. Ibid. 578-579.

90. Ibid. 578.

91. Reuben Hyde Walworth, Order of Reference of the Supreme Court of the United States in the Case of the State of Pennsylvania, Complainant, against the Wheeling and Belmont Bridge Company and Others, Defendants, with the Proofs Taken (Saratoga Springs, NY: G.F. White, 1851), liii.

92. 13 Howard 591.

93. Ibid.

94. Ibid. 592.

95. Ibid.

96. Ibid.

97. Ibid.

98. Ibid.

99. Ibid.

100. Ibid. 576.

101. Ibid.

102. Ibid.

103. Ibid. 577.

104. Ibid. 576.

105. Ibid. 577.

106. Ibid.

107. Ibid.

108. Ibid.

109. Ibid. 578.

110. Ibid.

111. Ibid.

112. Ibid. 602.

113. Ibid.

114. Ibid.

115. Ibid.

116. Ibid. 603.

117. Ibid.

118. Ibid.

119. Ibid.

120. Charles Ellet, Jr. to Elvira Ellet, January 16, 1852, Charles Ellet, Jr. Papers, Engineering Library, University of Michigan (hereafter cited as Ellet MSS).

121. Ibid.

122. Charles Ellet, Jr. to Elvira Ellet, January 21, 1852, describing Johnson's letter, Ellet MSS.

123. Charles Ellet, Jr. to Elvira Ellet, January 25, 1852, describing Stanton's telegram and its effect in Harrisburg, Ellet MSS.

124. Charles Ellet, Jr. to Elvira Ellet, February 4, 1852, describing his letter to Johnson, Ellet MSS.

125. 13 Howard 612; Reverdy Johnson to Charles Ellet, Jr., February 6, 1852, Ellet MSS.

126. Charles Ellet, Jr. to Elvira Ellet, February 10, 1852, Ellet MSS; Charles Ellet to Reverdy Johnson February 12, 1852, enclosing his suggestions, U.S. Supreme Court, Pennsylvania v. Wheeling and Belmont Bridge Company, Record Group 267, National Archives, (hereafter cited as Pa. v. WBBC, National Archives); "Motion for the defendants," filed February 13, 1852, Pa. v. WBBC, National Archives.

127. Charles Ellet, Jr. to Elvira Ellet, February 23, 1852, Ellet MSS.

128. Charles Ellet, Jr. to Elvira Ellet, February 26, 1852, describing Stanton's speech, Ellet MSS.

129. Charles Ellet, Jr. to Elvira Ellet, February 23, 1852, Ellet MSS. Stanton described Ellet as intentionally building a nuisance, misleading the people of Wheeling, risking the interests of the stockholders of the bridge company and defying the court.

130. 13 Howard 613.

131. Ibid.

132. Ibid. 614-615.

133. The Court referred the following suggestions: 1. A draw in the suspension bridge; 2. A draw in the wooden bridge over the western channel of the river; 3. Removal of the wooden bridge; 4. Removal of the floor of the suspension bridge.

134. McAlpine's report is included at 13 Howard 615-621; 616, 617.

135. Ibid. 620-621.

136. Ibid. 620, 617-620.

137. Ibid. 621. The arguments are not reported.

138. Ibid. 623.

139. Ibid.

140. Ibid.

141. Ibid. 623-624.

142. Ibid. 624.

143. Ibid. 626-627.

144. Ibid. 627-628.

145. 5 Stat. 726; Propeller Genessee Chief v. Henry Fitzhugh et al., 12 Howard 443.

146. "Petition from Principal Vesselmen, Vessel Masters, Forwarders, Merchants . . . ," filed with John Chester to Augustus Porter, January 20, 1844, Senate Papers. Quoted in Swisher, The Taney Period, 429.

147. Swisher, The Taney Period, 429.

148. Ralph S. and John Fretz v. John C. Bull et al., 12 Howard 466.

149. Ibid. 468.

150. Aaron B. Cooley v. the Board of Wardens of the Port of Philadelphia, 12 Howard 299.

151. Ibid. 307. The 1789 statute is 1 Stat. 53.

152. 5 Howard 580.

153. Ibid. 319.

154. 13 Howard 592.

CHAPTER XI
"ENGAGED BY THE WHEELING WARS IN ALL DIRECTIONS"

While the Supreme Court considered Pennsylvania v. Wheeling and Belmont Bridge Company in the winter of 1851-1852, the bridge company appealed to the national and state legislatures. At Harrisburg supporters of the bridge pressed the Pennsylvania General Assembly to withdraw the suit; at Richmond bridge proponents sought House and Senate resolutions requesting the Virginia congressional delegation to urge a general bridge clearance law.

Once the Court announced its decision the bridge company concentrated its efforts on the Thirty-second Congress. To provide congressmen with the evidence on the needs of land transportation which Walworth and the Court had refused to hear, the bridge company and its supporters embarked on a pamphlet campaign. But in addition to the substantive question of the relative rights of land and water transport, the national legislature considered constitutional issues regarding separation of powers. Debates in the House touched on whether the Court in the Wheeling Bridge decision had encroached on legislative prerogatives and the related question of whether congressional action "legalizing" the bridge would unconstitutionally reverse the decision of the Court.

The American technical press kept the concerns of future demand and technological progress raised by the Wheeling bridge dispute before public (and congressional) eyes. The American Railroad Journal and Scientific American reminded their readers in 1852 of the issues of safety and practicality associated with adapting steamboats and bridges to each other. Recent steamboat disasters would soon compel the Thirty-second Congress to amend the steamboat inspection law which could also be used to limit steamboat chimney height. Debate on steamboat safety regulations suggested similar control of bridge clearances. But the first concern of the bridge company after the Supreme Court announced its decision in May, 1852 centered on whether the company could meet the terms of the Court's order.

"The operation of exactions" which William McAlpine's report imposed on the bridge company were indeed formidable, and the company immediately set about trying to discharge its technological obligations.[1] Charles Ellet's critique of the report in a letter to Reverdy Johnson explained the obvious problems of McAlpine's proposal and asked Johnson to petition the Court for more latitude in the decree.[2] According to Ellet, McAlpine had proposed a draw "nearly three times as wide as the widest that has ever yet been built."[3] McAlpine had based his proposal on an English span of only sixty-six feet built in a different configuration. Ellet pointed out that the English draw when closed "rests on an abutment," and "is therefore firmly

supported, at its outer end."[4] In McAlpine's proposal the opposite leaves of the draw when closed "will have no support but that which they can reciprocally afford to each other."[5] McAlpine's design only obtained stability "by bolting the loose ends together."[6]

The bridge company, according to Ellet, was unwilling to be responsible for the success of McAlpine's plan, because the long timber span would be warped by the sun and racked by its own movement. McAlpine's span was also overdesigned and unnecessarily heavy.[7] Yet Ellet did not question the "practicability" of constructing or supporting a draw of 200 feet.[8] The major difficulty according to him was to operate the draw "with adequate rapidity."[9] He believed a moveable span could be constructed "which can be opened by three or four men, in two or at the utmost, three minutes," but not on McAlpine's design.[10] Ellet instead proposed to take out a 200-foot section of the western channel bridge and use "floating barges" carrying "a moveable platform, which can be swung out of the way by the force of the current as the boat approaches."[11]

Ellet therefore asked Reverdy Johnson to petition the Court for authority to clear the western channel of obstruction instead of altering the suspension bridge. Further, if the Court permitted a draw, he asked that the defendants be allowed the privilege of selecting "the best plan that the science, experience and mechanical skill of the country can produce," on the grounds that since the

bridge company would be "so far over-stepping the land-marks of experience" they should "scarcely be tied down to a particular plan."[12]

The Court acceded to Ellet's requests in its final decree by allowing the bridge company the option of "removing all obstructions in the western channel" instead of raising or removing the suspension bridge.[13] But the bridge company at the same time also searched for a more favorable outcome at the hands of the legislative branch.

Describing what he would soon call "the Wheeling wars in all directions," Ellet wrote in February, 1852 that the bridge company was currently engaged in efforts before three legislatures.[14] While he conducted the company's efforts in Harrisburg, Charles W. Russell, the Wheeling member of the Virginia House of Delegates, worked in Richmond, and George W. Thompson, member of Congress for Wheeling and vicinity, had charge of the bridge company's legislative proposals in Washington.

Ellet had gone to Harrisburg in January to "get up a party" in the legislature to dismiss the suit against the bridge.[15] His endeavors consisted of preparing pamphlet reports and lobbying legislators.[16] His major effort, The Wheeling Bridge Suit: A Notice of its History and Objects, accused Edwin Stanton and Charles Shaler of instigating the bridge suit to enhance their professional reputations. The legislature, unaware of these motives, had provided Stanton and Shaler with "a letter of marque" to destroy a bridge,

whose only fault lay in providing an avenue by which the western trade and travel might reach Philadelphia without passing through Pittsburgh.[17]

The suit, according to Ellet, would not have occurred but for the "value of the law job" and the "chronic envy and cultivated malice" of Pittsburgh.[18] But the state's position in the suit had changed with the creation of the Hempfield Railroad, chartered to connect the Pennsylvania Railroad at Greensburg with the Ohio River at Wheeling, and the Virginia legislature's concession to the Hempfield of a "clear passage" through Virginia territory.[19]

According to The Wheeling Bridge Suit the proceedings against the Wheeling bridge should be viewed as an attempt by selfish Pittsburgh steamboat and railroad interests to destroy the connection between "the great central line of our state" and the West.[20] In an attempt to gain the support of the Philadelphia delegation for dismissal of the suit, Ellet argued that trade from the three major western rail lines which might have crossed the Wheeling bridge and reached Philadelphia on the Hempfield and Pennsylvania Railroads would be "blindly and recklessly" diverted to Baltimore.[21] Ellet concluded the "man of honor and justice" would say that the bridge company, which had given Philadelphia "an open pathway to the richest trade that a bountiful Providence has ever bestowed," deserved the state's thanks rather than its "unmitigated and lasting persecution."[22]

Reply to a Pamphlet entitled "Wheeling Bridge Suit" urged the legislature to continue the suit since Pennsylvania's revenues from the Main Line had been injured by the obstruction of steamboats at the bridge.[23] Imitating Virginia's action, other states had chartered bridges over the Ohio. If this "assumed right" of "exclusive sovereignty and dominion" remained undecided, Reply predicted it would "soon be too late to question it."[24] Abandonment of the present suit would be equivalent to abandoning Pennsylvania's commerce on the Ohio river "to the unchecked legislation and rival interests of bordering states."[25]

Rebutting Ellet's information on the Hempfield Railroad and its connections, Reply pointed out that most of the western railroads identified in Wheeling Bridge Suit did not exist and their construction was "a matter of great uncertainty, and of remote future contingency."[26] And if Ellet's predictions were accurate, the railroads concentrating at Wheeling would pay for the erection of a "proper bridge," since the commissioner of the Court had already determined that the present bridge "is not, and cannot be, adapted to railroad purposes at all."[27]

According to Reply survival of the present bridge would make Wheeling the effective head of navigation on the Ohio River, and commerce would pass eastward over the B. and O. Railroad to Baltimore. But if the Court ordered the bridge removed or raised, river commerce would continue to Pittsburgh and then move eastward on the state works or the

Pennsylvania Railroad to Philadelphia. The suit's promoters did not see the necessity to "sacrifice" river commerce through Pittsburgh to secure railroad commerce through Wheeling, because "the elevation of the bridge sought for in this suit" would permit "the former to remain" while it would "give every alleged advantage to the latter."[28] To the author of Reply Philadelphia in particular and Pennsylvania as a whole stood to gain the most in terms of tolls and trade by the removal of the obstruction.

During the 1852 session both the Pennsylvania House and Senate heard numerous petitions from counties which favored withdrawal of the suit and remonstrances from counties opposed to withdrawal.[29] The House select committee report on Westmoreland County's petition included a resolution which Ellet considered favorable to the bridge cause.[30] But Ellet wrote that he doubted if the resolution would come up for consideration on the House floor before the Supreme Court announced its decision. Two weeks later when Johnson telegraphed that the Court had decided, the House still had not acted on the proposed resolution.[31]

The next day, hoping to salvage something for his efforts in Harrisburg, Ellet prepared a memorial for those members of both houses who shared his views on the Wheeling Bridge case.[32] The memorial, signed by thirty-six members of the legislature and subsequently presented to Congress, affirmed the legislators' belief that the Wheeling bridge did not offer "such an obstruction to the free navigation of

the Ohio River as to require its elevation to a greater height, or its abatement as a nuisance."[33] The legislators admitted their regret that the suit "was ever instituted in the name of this Commonwealth."[34] And they "respectfully and earnestly" commended the bridge to Congress "for such protection as may be lawfully conceded to it."[35]

While the bridge company's campaign before the Pennsylvania legislature failed to achieve the hoped-for withdrawal of the suit, the Virginia legislature, not surprisingly, looked more favorably on the presentations of the bridge company and its allies. Directed by Charles W. Russell, attorney for the bridge company and also member of the House of Delegates from Wheeling, the campaign at Richmond took two forms: the request for state intervention at the national level, and the request for legislative support for local matters at Wheeling.[36]

In March Russell presented the opinions of Chief Justice Taney and justices McLean and Daniel to the House of Delegates which referred the material to its Committee for Courts of Justice.[37] After consideration the committee reported on April 10 that "enforcement of the [Supreme Court's] decree . . . would not only tend to deprive the country of a valuable means of intercourse, . . . but would inflict a misfortune upon a part of the good people of this state."[38] In the opinion of the committee the legislature should urge Virginia's congressional delegation "to propose

and support such proper measures within the constitutional power of Congress as may serve to maintain the bridge.[39]

Both the House of Delegates and the Senate debated the proposal and on May 26th an amended resolution passed both houses "to urge upon Congress the necessity for such legislation as shall speedily adjust the controversy . . . so as to preserve the same [the bridge] as at present existing."[40] The Virginia legislature also asked the congressional delegation to procure the passage of laws "necessary and proper for the regulation of commerce on the Ohio River, defining . . . the elevation at which bridges may be constructed over same, so as to prevent the occurrence [sic] of all similar controversies in future."[41]

Earlier in the session the legislature had considered a memorial of the Wheeling Board of Trade deferred from the previous year which asked for protection of their "enjoyment of rights, privileges and franchises" associated with the Wheeling and Belmont Bridge Company.[42] According to the "second city's" Board of Trade, Wheeling's size and prosperity resulted from "the devotion and energy of her citizens in maintaining themselves against a heavy competition in an adjoining state and in constructing important improvements," among the most important and valuable of which was the Wheeling bridge.[43] But in violation "of the rights of your memorialists and the state," Pennsylvania had asked for an injunction against the bridge, "harassing the company and producing in the public

mind a want of confidence in the stability of the improvements."[44] According to the petition, Pittsburgh had been actuated by "malice" and "a desire to injure your memorialists by preventing western railroad connections here."[45]

The memorial of the Board of Trade displayed both the national and local aspects of the bridge case. On the national front, the Board asked the Virginia legislature to intervene to protect the state's "rights" [to charter the bridge] which Pennsylvania had violated by seeking an injunction against the bridge company, and which the Board of Trade feared the Supreme Court would grant. On the local front, they pointed out to the Virginia legislature that the Pittsburgh suit was an attempt to prevent western railroads from terminating at Wheeling.

The latter point was also before the legislature in a different guise in 1852. The Hempfield Railroad, connecting Wheeling to the Pennsylvania Railroad at Greensburg, Pennsylvania, had a northern rival which sought a Virginia charter. Petitions from Hancock and Brooke counties in the Virginia panhandle (running north of Wheeling, between the Pennsylvania line and the Ohio River) requested that the legislature charter a Virginia Pittsburgh and Steubenville Railroad to connect the Steubenville and Indiana Railroad (chartered by Ohio and terminating at Steubenville) and the Pittsburgh and Steubenville Railroad (chartered by

Pennsylvania and terminating at the Pennsylvania state line).[46]

The petitioners requested that the proposed Virginia company be granted the right to bridge the Ohio River at Steubenville and to link the Pennsylvania and Ohio railroads by a route across the six miles of the Virginia neck. Because the proposed railroad would by-pass Wheeling and potentially bring the traffic from the western railroads then under construction across the river to Pittsburgh on another bridge, the City of Wheeling, the Wheeling and Belmont Bridge Company and the Hempfield Railroad interests opposed the new line.[47] In late May, 1852 the proposed charter was rejected by both houses, largely as a result of Wheeling-based efforts.[48]

While Ellet and Russell conducted the bridge company's efforts at Harrisburg and Richmond, the technical press also campaigned in favor of the bridge. Both Henry Varnum Poor's American Railroad Journal and Scientific American had reported on the Wheeling bridge and its tribulations since 1849. Though differing in audience and outlook, both publications informed their readers that the Court's decision in the Wheeling Bridge case would extend beyond the individual instance and affect future American transportation development.[49]

According to the American Railroad Journal the Court's judgment conflicted with "the judgment of those, whose interests are most concerned" as to the "great advantage

which structures over the Ohio river . . . give to . . . the trade of that valley."[50] Citing the almost unanimous petition of the Ohio legislature asking Congress "to interpose to sustain the bridge," the American Railroad Journal declared that Congress had "the right" to do so and should "rescue" the bridge "from the decision of the Court."[51] Looking to the future, the Journal believed the issue of obstruction would "increase in importance as the country fills up and railroads are extended."[52] If Congress failed to act, the Wheeling Bridge decision "must ever operate as an insurmountable objection to bridging the western rivers."[53]

While the American Railroad Journal saw the effects of the suit in terms of future railroad development, Scientific American considered the ramifications of the case with regard to both steamboats and railroads. On November 15, 1851 the editor had remarked "it appears that while there will soon be six railroads needing this bridge to cross the Ohio at Wheeling, there are six steamboats owned at Pittsburgh, having excessively long pipes, which the proprietors declare they will neither shorten nor lower in times of high water for the benefit of cross travel."[54] SA noted that the question of the relative rights of the two parties ("those six punctilious owners" on the one hand and "the people of the United States" on the other) would soon be decided by the United States Supreme Court.[55]

On the legal issues SA's editor agreed with Justice Taney that "Congress alone has power over this case," but believed if Congress considered the issues it would have to wrestle with "some knotty questions" of policy, such as "will we allow bridges with draws or shall we prescribe a certain height for steamboat chimneys?"[56] According to SA the chief argument produced against the Wheeling bridge was that it obstructed steamboats with tall chimneys. But the editor declared "we have had enough, God knows, of the nuisance of western steamboats within the past three weeks."[57] It would be better to "let the West go in for railroads, and render the use of explosive steamboats obsolete."[58] Looking to the future he prophesied that steamboats would soon be redesigned not to "waste so much coal" or "carry so high steam," and chimneys would be shortened "like the boats at the North, which are as swift and certainly far safer."[59]

At the same time that Scientific American described the Wheeling bridge dispute as a choice between letting the West "go for railroads" or continue to rely on "explosive steamboats," Congress considered both matters. Wheeling's member of the House of Representatives presented the bridge company's side of the argument. Even before the Court had officially announced its decision, George W. Thompson had written Ellet that he felt the bridge was "comparatively safe," because the "West and South and those not interested in the result of the suit will not inactively stand by and

sustain what a high judicial authority has termed this decision to be, an act of legalized vandalism."[60]

However, the effort to have the bridge "legalized" by Congress moved slowly. In early February Thompson had had his own memorial relating to the bridge referred to the Committee on Post Offices and Post Roads and had "appeared before them and made an explanation of all the points involved and frankly stated all the matters connected with the question and they unanimously requested me to draw up the Report."[61] The remainder of the month was taken up asking the Court to reframe their decision to allow for a draw, preparing and presenting new arguments and awaiting the decree. By early March Ellet had prepared a memorial for the bridge company to Congress and wrote his wife that "[w]hen Judge Taney's opinion is printed and circulated, in Congress, and followed by my memorial, I think the Court will conclude that they are on the unpopular side of this question."[62]

The subtitle for Ellet's memorial for the bridge company, "The Wheeling Bridge Suit is a Part of a Railroad Controversy," immediately established the company's aim of placing the suit in the context of larger transportation issues, not the isolated nuisance case.[63] The bridge company stated that the suit had been brought by interests who opposed the bridge "because it was intended to facilitate the passage of certain great western lines of railroad."[64] The bridge company showed that the engineer

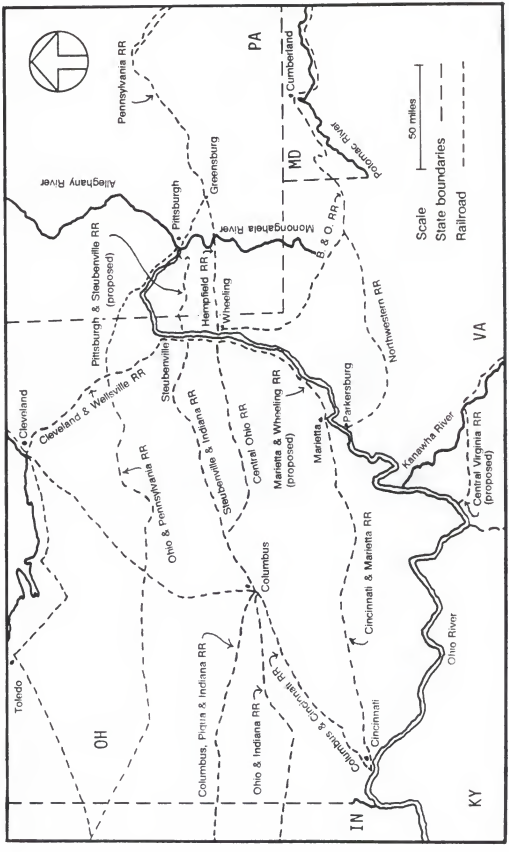


Figure 5. Upper Ohio Valley Railroads in the Early 1850s

and president of the Pennsylvania and Ohio Railroad had commenced the suit "avowedly for the purpose of embarassing the Baltimore and Ohio Railroad, and forcing the western roads of Ohio up to Pittsburgh under the specious pretext of injury to the navigation."[65]

Having exposed the real authors of the suit, the pamphlet next set about exposing what the company considered to be the irregularities of the proceedings in the case. They questioned the Court's selection of the commissioner, the commissioner's selection of the engineer, and the denial of their "sacred privilege," a trial by jury.[66] Further, the bridge company claimed the commissioner had permitted testimony "only on one side of the case," had rejected "all testimony going to show the importance of the bridge," and yet had admitted the testimony of Pittsburgh residents "who subscribed money to carry on the suit and prevent railroads from crossing at Wheeling, and who openly avowed an interest in the result."[67] The bridge company also questioned the Supreme Court's assumption of jurisdiction on the ground that Pennsylvania had suffered an "irreparable injury,"[68] Quoting from a letter of Israel Painter, "late President of the Board of Canal Commissioners" of Pennsylvania, they showed that for two years after the Wheeling bridge had been completed "the revenues of the public works of Pennsylvania were in no degree impaired by the existence of that structure."[69]

The bridge company concluded their petition with an appeal to Congress' proprietorial interest in matters of commerce. The bridge company pointed out that the "empirical rule" established by the Court, in the absence of any rule prescribed by Congress, required that bridges "now becoming everywhere necessary" be raised to eighty feet above the streets of towns on the river banks.[70] The bridge company felt that such a requirement was unreasonable and "equivalent to a decree against the construction of continuous railroads, without the authority of Congress."[71]

The petition asked Congress to "recognise that just principle" and permit the great public benefits of the bridge "to be set off" against the "small private inconveniences."[72] The company concluded that Congress should "either sanction the Wheeling Bridge, as it is" or by limiting the height of steamboat chimneys, "adjust, by some fixed rules and principles, the relative claims to protection, of those who navigate the rivers and those who travel by land."[73]

Ellet's pamphlet for the bridge company dealt with matters of attitude and fact related to the suit; Thompson's report traced the legal authority which he asked Congress to invoke.[74] Wheeling's congressman described the difficulties of western mail service before the bridge and the improvements in mail delivery since its construction. Using the rationale that Congress should protect the best route, Thompson concluded that the bridge should be designated a

post road. He also believed that the national government had been "bound by an obligatory contract to build that bridge" in order to fulfill the terms of the act admitting Ohio to statehood.[75] Since Congress had failed in this obligation, it should protect the interests of those who had filled the need.

Resorting to equitable principles, Thompson continued, "there is a land-carrige [sic] which must be equally under the protection of Congress, as river navigation is under that of the Supreme Court."[76] Since the Wheeling and Belmont Bridge Company had first "use and occupation of these coordinate rights," they stood "first in equity and the right of protection."[77] When "coordinate rights" conflicted, Thompson declared "the most that can be accomplished or desired" was "a mutual adaptation to the respective interests involved."[78] Since the Wheeling bridge had been built at the "highest practicable" elevation, according to the principle of mutual adaptation Congress should require steamboats "to conform their structure" to the existing bridge.[79]

Congress had already exercised similar authority in steamboat regulation, and according to Thompson, had the unquestioned right to limit the height of chimneys "lest life be endangered and property destroyed."[80] In the Wheeling Bridge case the Pennsylvania counsel's justification that tall chimneys were necessary "to attain a maximum of propulsion with a minimum weight of boiler and

engine" represented to Thompson "the maximum of theoretical folly and the minimum of practical safety."[81]

Congress had never legislated on "relative rights and limitations of land and water commerce," and therefore the Supreme Court "could only but see the ancient rights of navigation on the natural channels of communication, and but view the improvements of an advanced and prolific age, as an innovation . . . which could only be legalized by legislation."[82] The proposed legislation affirmed the "improvements of the age and the demands of a transverse commerce" on an "equal ground" before the Court.[83]

Thompson had presented his written argument to the chairman of the House Committee on Post Offices and Post Roads who loaned it to Edwin Stanton.[84] While Thompson fumed over the leak, Stanton prepared a response which was presented to the committee on April 21, 1852 by William Wilkins on behalf of the City of Pittsburgh.[85] Wilkins' argument described the objects of the law proposed by Thompson as "merely colorable."[86] After all, said Wilkins, the mail at other places crossed rivers by ferry, why not at Wheeling? Nor could necessity justify the Wheeling bridge legislation, since the Court had determined if the bridge was raised both land and water traffic would be preserved, and the company would still profit. As to the "justice" of the proposed law, new steamboats cost the packet line approximately $40,000 to $50,000 per boat and the line's five-year expenses totalled $1.6 million.[87] Allowing the

$135,000 Wheeling Bridge to remain worked an injustice on the packet line.

The proposed legislation before the committee was also poor policy. To Wilkins few questions of policy remained so clear as preserving freedom of navigation. Even Virginia had protected navigation in the charter of the bridge company. Congress had also appropriated funds to improve the river for the benefit of all. According to Wilkins "it would exhibit a strange inconsistency" to spend money "to accomplish this important object [river improvement]," and at the same time allow a local corporation to defeat it.[88] To report favorably on the proposed legislation would threaten "one of the chief objects of the Union"--freedom of navigation.[89] Federal courts had been established to enforce this right. If the effect of the Court's judgment regarding the right of navigation was "reversed . . . by congressional enactment," this "bond of union" would be loosened, and its security would be "exposed to the hazards of hasty legislation."[90]

The bridge company proceeded with its campaign and presented another pamphlet to Congress in the guise of "remarks" from Ellet to Thompson.[91] Continuing in the vein of the March memorial to Congress, the new pamphlet disclosed both the irresponsibility of Pennsylvania's counsel and the erroneous reasoning of the Court. According to Ellet's Remarks the justices "in the pressure of business" had relied on the Complainant's Brief, not the

original record of the commissioner.[92] They had therefore been "deceived by the detached and mutilated fragments [of testimony] which were there prepared for them" by Pennsylvania's counsel.[93] To prove his point Ellet compared the recorded testimony of three witnesses with the quotations in the Complainant's Brief on which the Court had relied, and also printed the new deposition of Prescott Devol who denied that he ever employed the language which the Court attributed to him.

Ellet believed the irresponsibility of the Pennsylvania counsel extended beyond misquotations in their brief. Devol stated in his new deposition that the lawyers had requested P. and C. captains "not to use too great exertions to get under the bridge, but if they possibly could, to lay up at the bridge, particularly while this case was pending."[94] According to Devol, when he returned from one such incident at Wheeling, they "expressed much regret that affiant had not created a fight at Wheeling, in order, as they said, to give tone to the case abroad."[95]

Ellet's Remarks also dealt with the ostensible safety of steamboats with tall chimneys. He disclosed that three of the P. and C. boats had recently caused the loss of lives. The Brilliant had "exploded twice within a year and a half," most recently killing at least fifty people.[96] The Buckeye State and Pittsburgh had each exploded within the last four months, in both cases causing death and injuries to crews and passengers.

Ellet hoped his comments on steamboat safety would attract the interest of the Senate Commerce Committee which was currently investigating the topic and considering amendment of the 1838 steamboat inspection law.[97] In the interval between passage of the 1838 act and the spring of 1852, thousands of passengers and crew had lost their lives in steamboat disasters.[98] The 1838 law had passed Congress on a wave of public outrage over the slaughter caused by steamboat explosions and accidents that year.[99] The Journal of the Franklin Institute, which had produced the technical evidence leading to the 1838 law, in 1851 described the steam navigation of the western waters as "a history of wholesale murder and unintentional suicide."[100] According to the Report . . . of the Steam Marine of the United States prepared by the Secretary of the Treasury that year, 695 people had been killed in steamboat accidents in the twelve months ending June 30, 1851.[101]

The Senate took up the Commerce Committee's bill to ensure the safety of passengers on July 7, 1852. Senator John Davis (Whig) of Massachusetts, sponsor of the bill, told his colleagues tht the national government "ought to interfere and check . . . the inhumanity which prevails" along the inland rivers.[102] Davis explained that the committee intended the proposed bill to reduce the risks of fire, explosion and collision by stringent inspection of the boats and their equipment, and examination and licensure of pilots and engineers.

Debates surrounding the passage of the bill (and its approximately 150 amendments) centered on Congress' power to regulate vessels and the method chosen by the committee to do so. Although the question of power appeared to be settled, given the undisputed fourteen-year use of the 1838 regulations, a few senators questioned the national government's authority to interfere with steamboat owners' rights of property. Quoting Thomas Jefferson, "eternal vigilance is the price of liberty," they decried the proposal as an invasion of the "liberty of the citizen, the investment of his property, or the management of his own business."[103]

Other senators representing states along the seaboard accepted Congress' power to act but opposed the method of regulation. To them application of the proposed law on both the coast and inland waters would work undue hardship on the operators of coastal vessels which rarely exploded or caught fire. They believed the "self-interest of steamboat owners" served as better incentive to safe vessels than interposition of the political appointees who would inspect the boats.[104] But national desire to stem the carnage overrode constitutional and legal scruples and protests of steamboat owners and operators.

On the day after the Senate took up the steamboat inspection bill, Ellet published another pamphlet for the bridge company which returned to the earlier theme of "the railroad question" and repeated the assertion that the

bridge suit had been brought by Pittsburgh railroad interests.[105] According to Ellet, a recently published letter of advice to the Pennsylvania Railroad regarding the Hempfield Railroad's request for funds demonstrated that the "dishonorable proceeding" against the bridge company had been instigated as part of the Pittsburgh railroad rivalry.[106]

While Ellet pressed the bridge company claims in pamphlet form, Thompson worked through his Senate and House connections, and the legislatures of Virginia, Ohio and Indiana sent memorials in support of the bridges, the House Committee on Post Offices and Post Roads reported favorably on the proposal to declare the Wheeling bridges post and military roads.[107] Much of the report parallelled the argument of Thompson and the memorial of the bridge company to Congress. The committee report also quoted extensively from the dissents of justices Taney and Daniel in the Wheeling Bridge case and described the decision of the majority of the Court "as an encroachment of the judiciary upon the legislative branch of government."[108] Edson B. Olds, an Ohio Democrat speaking for the committee, summarized the detentions of mail formerly caused by difficulty and delay crossing the river, and cited the authority of Congress to create post roads. He called upon Congress to protect land traffic by establishing the private bridges as post routes.[109]

Orin Fowler, a Free Soil Whig from Massachusetts, presented the committee's minority report which reiterated many of the findings of Commissioner Walworth which Justice McLean had used in the decision.[110] According to Fowler the bill reversed a judgment of the Supreme Court to enforce a compact between the states. Fowler and two other members of the committee concluded that "the proposed measure is not only unnecessary, unwise and unjust, but a clear violation of constitutional right, and would be the exercise of a prohibited authority."[111]

On August 13 the House took up the question. Debate centered on whether the Court had overstepped its power by deciding in the absence of federal legislation the limits of state authority over determination of obstructions to interstate navigation.[112] Proponents of congressional action in the Wheeling matter hoped for a general law to deal with anticipated conflicts at other bridge sites.[113] Opponents of the action saw the proposed legislation as a reversal of the court's decree.

Democrat Joseph A. Woodward of South Carolina believed that Congress should consider the Wheeling Bridge case because the "determination of nuisance depends upon the comparison of one interest with another," and "the progress of science and arts is continually changing the relative value of things."[114] According to Woodward Congress was forward-looking and could best determine what should be, while the Court could only react to specific issues. As the

branch of government called upon to determine policy, Congress should establish rules regarding future bridges over navigable streams. For those members of Congress who were concerned that their action would impose on the prerogatives of the Court, Woodward declared that "the Court will decide upon the effect of the law we now propose to pass, and from that decision there will be no appeal."[115]

Representative David T. Disney, an Ohio Democrat, explained that there was no conflict between Congress' power to establish a lawful bridge and the Supreme Court's decree.[116] According to the Court's decision Congress could determine obstructions by means of the commerce power. When the Wheeling Bridge case had reached the Court, Congress had not exercised the commerce power as it related to obstructions, and the Court had decided in the absence of congressional action. But that decision did not prevent Congress from exercising its authority now. Five other members of Congress who debated the issue shared Disney's conviction.[117] Three other congressmen opposed Disney's point of view and did not believe that Congress had the ability to act "as a self-constituted court of errors and appeals" to "reverse or render inoperative, the solemn adjudications of the Supreme Court."[118]

The House and Senate discussed the bills to regulate steamboats and to designate the Wheeling bridges as post routes simultaneously in the summer of 1852.[119] But only Representative Disney remarked upon the complementary nature

of the two measures. On August 17, while arguing that the "principles laid down" by the Court in the bridge case were "not consonant with the spirit of the age," Disney stated that "no one will deny the competency of Congress to declare, if they shall deem it a matter of policy, . . . that the height of chimneys upon steamboats shall not exceed a given altitude."[120] To Disney, such a limitation of chimney height represented an equally effective way to protect the Wheeling bridge.

As the session advanced, the concept of a general bill became lost in the last-minute scramble. Instead, brief riders to the post office appropriation designated the Wheeling bridges as post and military roads. The bill passed both houses during the last three days of the session; at the same time the steamboat inspection law passed.[121]

On September 1, the editor of the Wheeling Intelligencer, noting that the president had signed the bridge bill, stated that "the question is settled not only for the present, but for all time to come."[122] Ellet, however, recognized that the bill resolved only part of the bridge company's problems--the future of the bridge still depended on the terminus for the western railroads, the completion of the Baltimore and Ohio to Wheeling and the full subscription of the Hempfield Railroad stock. According to Ellet "the business of Wheeling seems to be rapidly approaching a crisis."[123] If all of the railroad

matters went "right," Wheeling would "begin to shine next year."[124]

But the bridge company was again forced to seek financial aid. In December, 1852 the company explained in their petition to the Virginia General Assembly that "the greater part of their revenue" had been "absorbed" by their defense in the bridge case.[125] Current traffic afforded ample revenue to repay the loan, and the company's future prospects were even better since "much of the trade and travel from the railroads" terminating at Wheeling "must find its way across the Ohio River upon the bridges of the company."[126]

By the end of the month the Baltimore and Ohio Railroad had completed its line to Wheeling.[127] While the B. and O. and the City of Wheeling celebrated the arrival of the first Transalleghany train, Ellet returned to Harrisburg to lobby for the Hempfield subscription before the Pennsylvania legislature, and Russell attended the General Assembly at Richmond. In addition to the Wheeling and Belmont Bridge Company petition, the General Assembly would consider another proposal for the "panhandle railroad" (the Pittsburgh and Steubenville) charter which Wheeling interests opposed.[128]

In late January Russell wrote to one of the bridge company directors that the capitol was "crowded with lobby members from Pittsburgh who have employed all the leading lawyers and [are] using their influence to get the [P. and

S.] right of way."[129] A few days later he declared that Pittsburgh was "evidently spending immense sums of money here to secure the passage of this bill."[130] The Pittsburgh lobbyists, recognizing that their Wheeling adversaries supported the Hempfield Railroad subscription before the Pennsylvania legislature, threatened retaliation at Harrisburg if the P. and S. Railroad and Steubenville bridge charters failed in Richmond.[131] But the City of Wheeling chose "to resist to the utmost" the P. and S. charter "whether the Philadelphia subscription [to the Hempfield] be made dependent on it or not."[132]

In February, 1853 in the Supreme Court Edwin Stanton and James Campbell, Attorney-General of Pennsylvania, moved for an order to execute the decree against the bridge company and for attachment of the officers of the company for noncompliance. The Court agreed to hear arguments on the motion at its December term.[133]

Reverdy Johnson, who appeared for the bridge company in the matter, wrote to his co-counsel Russell describing the proceedings. His letter and copy of the Pennsylvania motion arrived in Richmond on the day the House of Delegates debated the P. and S. charter.[134] During the debate Wheeling members raised the question of whether Pennsylvania was trying to extort the P. and S. charter from the Virginia legislature by means of the motion before the Court.[135] Wheeling's state Senator Thomas S. Sweeney (who attended the House debate) wrote to Ellet in Harrisburg that after an

elaborate discussion the delegates had voted to "indefinitely postpone" the panhandle charters which, Sweeney remarked, sent the "infernal harpies" and "vampire crew" from Pittsburgh packing.[136]

With the defeat at Richmond of the P. and S. efforts, the scene of action quickly shifted to Pennsylvania where the legislature authorized Philadelphia railroad subscriptions. In late April the Hempfield Board, in anticipation of the Philadelphia funds, voted in favor of "immediate letting and speedy completion of the entire work."[137] Pittsburgh had lost another round in the "Wheeling wars," and at the end of 1853 another legal setback was in the offing.

In December when the U.S. Supreme Court called the hearing on the motion to execute the decree of Pennsylvania v. Wheeling and Belmont Bridge Company, Pennsylvania's lawyers failed to appear, and the Court dismissed the motion.[138] Alexander H.H. Stuart wrote Ellet that he was "inclined to think that the Court preferred getting rid of the cause in this way, to having the whole subject reviewed in a public discussion."[139] Stuart explained that he and Johnson had prepared arguments in behalf of the bridge company, and "felt no doubt as to the result," but he continued "we must be content, however, with success without quarreling with the form."[140] The National Intelligencer, commenting on the case on the 17th, shared Stuart's belief that the matter appeared at an end. According to the editor

Pennsylvania's failure to appear represented "an abandonment of the case."[141]

Two weeks later Stuart amended his earlier position. In another letter to Ellet he discussed the implications of the Court's action for bridge company concerns. He acknowledged that dismissing the motion left the decree "in full force," and that Pennsylvania could later renew its motion.[142] But Stuart doubted the Court would entertain a renewed motion since "the matter was fairly put in issue by the former motion . . . and instead of meeting the question, Pennsylvania thought proper to be in default."[143] Stuart admitted that Pittsburgh might be "attempting to practice a ruse."[144] Given this possibility he agreed with Ellet that any grant from the Virginia legislature to the panhandle railroad should be conditional on protection for the bridge company. Although Stuart had no fear "of actual danger from any future motion on the suit," out of "abundant caution" he recommended no concessions "of any kind."[145]

Therefore Ellet's 1854 memorial of the Wheeling and Belmont Bridge Company to the Virginia General Assembly repeated the history of the bridge case and pointed to the "notorious fact" that the "original and prominent patrons" of the P. and S. Railroad now asking the Virginia legislature for a charter were "the identical parties" who "projected and prosecuted" the Wheeling Bridge suit.[146] The bridge company memorial also claimed that the proposed objects of the two endeavors were "precisely the same"--to

force the western railroads to terminate at Pittsburgh.[147] Repeating many of the claims and quoting much of the material submitted to Congress two years before, the memorial identified "the names of Stanton, Holmes, Moorhead, Darsie, Irwin, Riddle and Harper" as "the leaders and champions of both measures."[148]

According to the bridge company the current status of the bridge case represented a "deceptive pretence" founded on the "transparent trick" of allowing "a motion to be dismissed while the decree itself is suffered to stand."[149] Pennsylvania had used this strategy "merely for the purpose of promoting the application now pending" in the Virginia legislature to charter the panhandle railroad and the complementary Steubenville bridge.[150] Pennsylvania would renew its motion in the Supreme Court as soon as the Virginia legislature granted the charters. Therefore the bridge company memorial proposed that the legislature only grant the railroad charter subject to payment of all costs "which may have been or may hereafter be incurred" by the company in defending or altering the bridge.[151] The memorial also adamantly opposed any concessions regarding a bridge at Steubenville. Once again Pittsburgh lobbyists left Richmond disappointed.

The various state and national campaigns in the "Wheeling wars" illustrate the responsiveness of legislatures to constituent concerns. At the state level the machinations of the Hempfield and Pittsburgh and

Steubenville lobbyists provided the Wheeling bridge dispute with the backdrop of a continuing railroad controversy. At the national level the context shifted to competing land and water systems, backed by Virginia and Pennsylvania respectively.

Virginia maintained the unusual stance of advocating a federal statute to support the Wheeling bridge which the state had chartered as an exercise of state sovereignty over its territorial waters. Pennsylvania, having initiated the successful judicial proceeding, resorted to a defensive attitude before Congress--merely trying to protect the Court's decision from congressional meddling.

The "Wheeling wars" also underscored the distinction drawn by Congressman Woodward beteeen judicial and legislative action. In the debate over the Wheeling bridge statute Woodward had pointed out that legislatures looked forward and courts could only react to specific issues presented to them. Yet Congress in 1852 had shied away from establishing a forward-looking policy with regard to bridges and had simply reacted by legalizing an individual bridge.

In the Wheeling bridge designation Congress had responded to what many of its members saw as judicial invasion of the legislative sphere. But what some members saw as protection of their prerogatives others saw as an attempt to reverse a decision of the Court. And the Court could not react to this potential invasion of the judicial sphere without a case. When Pennsylvania moved in February,

1853 for an order to execute the Pennsylvania v. Wheeling and Belmont Bridge decree it seemed the Court would soon have its chance to review the statute. Instead, Pennsylvania's lawyers failed to show, the Court dismissed the motion, and the matter appeared closed.

Notes

1. The quotation is from Taney's dissent in the Wheeling Bridge Case, 13 Howard 627.

2. Charles Ellet, Jr. to Reverdy Johnson, May 12, 1852, Charles Ellet, Jr. Papers, Engineering Library, University of Michigan (hereafter cited as Ellet MSS).

3. Ibid.

4. Ibid.

5. Ibid.

6. Ibid.

7. Ibid. According to Ellet, McAlpine's draw would weigh as much as a steamboat.

8. Ibid.

9. Ibid.

10. Ibid.

11. Ibid.

12. Ibid. If the Court refused the company freedom of choice, then Ellet asked that they consider an option of no draw at all but the removal of a section of the western bridge. Since the tall P. and C. boats would pass through this opening only twice in twenty-four hours during high stages of water, Ellet requested that the bridge company have the privilege of accommodating land traffic in overcoming this 200-foot gap during the six or seven months of low water, the twenty to thirty days when ice was running and the twenty-three out of twenty-four hours when no boat would pass.

13. 13 Howard 627.

14. Charles Ellet, Jr. to Elvira Ellet, February 1, 1852, Ellet MSS. "Wheeling wars in all directions" from Charles Ellet, Jr. to Elvira Ellet, August 2, 1852, Ellet MSS.

15. Charles Ellet, Jr. to Mary Ellet, January 16, 1852, Ellet MSS.

16. In a series of letters to his wife in late January and early February Ellet described delivering speeches, debating "the Pittsburgh member" and preparing and distributing three pamphlets. The Wheeling Bridge Suit: A Notice of its History and Objects (Philadelphia: John C. Clark, 1852), was illustrated by a map "prepared under the direction of Charles Ellet, Jr." A copy is included in the Ellet MSS at the University of Michigan and is apparently one of the pamphlets prepared by Ellet. Another pamphlet The Wheeling Bridge Case: Facts and Considerations addressed to the Select Committee . . . . (N.p., [1852]) also found among the Ellet Collection is apparently another Ellet work. This pamphlet was also published in the Harrisburg Pennsylvania Telegraph, January 24, 1852. I have been unable to find the third item.

17. The Wheeling Bridge Suit, 4.

18. Ibid. 8-9, 13.

19. Ibid. 6.

20. Ibid. 6-7.

21. Ibid.

22. Ibid. 18.

23. Reply to a Pamphlet entitled "Wheeling Bridge Suit: A Notice of its History and Objectives . . ." Containing Facts Reported by Chancellor Walworth to the Supreme Court (N.p., n.d.). This pamphlet may have been written by either George Darsie, Benton Kerr or John Holmes, all of whom received payment from the P. and C. Packet Line during the winter and spring of 1852. Darsie and Kerr each recieved $70 on January 27. Holmes received $2049, "the amount he is now in advance on acc. of the suit against the Wheeling Bridge," Pittsburgh and Cincinnati Packet Line: Minute Book, Historical Society of Western Pennsylvania.

24. Reply 10, 11.

25. Ibid.

26. Ibid. 12.

27. Ibid. 8, 12.

28. Ibid.

29. In the Senate Berks, Washington and Philadelphia (6) counties presented petitions in favor of withdrawal. Lancaster and Alleghany (2) counties presented remonstrances against withdrawal. Journal of the Senate, 1852, Harrisburg, PA.
In the House Westmoreland, Philadelphia (8) and Washington (2) counties presented petitions in favor of withdrawal. Alleghany (3) and Lancaster counties presented remonstrances opposed withdrawal. Journal of the House of Representatives, 1852, Harrisburg, PA.

30. Charles Ellet, Jr. to Elvira, January 23, 1852, Ellet MSS. Ellet wrote "The committee have reported in favor of the resolution just as I wrote it."

31. In the wake of the Court's decision, withdrawal from the suit ceased to be at issue, and the significantly amended resolution which passed on February 14 merely stated that the Pennsylvania legislature felt its position in the controversy "should be brought before Congress in an official manner." The legislature therefore asked the governor to convey to the Pennsylvania congressional delegation the joint resolution of 1844 (against federal appropriation to build the Wheeling bridge) and the joint resolution of 1850 (endorsing the Attorney-General's action in the bridge suit). Resolutions of the Legislature of Pennsylvania in relation to the Wheeling Bridge, 32d Cong., 1st sess. (1852) S. Mis. Doc. 44. The reference to "official manner" represented a rebuke of the thirty-six members who signed the unofficial memorial.

32. Charles Ellet, Jr. to Elvira Ellet, February 7, 1852, Ellet MSS.

33. Memorial of Thirty-six Members of the Legislature of Pennsylvania, 32d Cong., 1st sess. (1852) S. Mis. Doc. 43.

34. Ibid.

35. Ibid.

36. The Wheeling Bridge Company also petitioned the legislature to amend their charter to increase the

capital stock of the company to cover its additional liabilities caused by the bridge suit. "Memorial of the Board of Managers of the Wheeling and Belmont Bridge Company," January 17, 1852, in petitions to the Virginia General Assembly, Virginia State Library (hereafter cited VSL). The legislature passed "An Act to enable the Wheeling and Belmont Bridge Company to raise money by an issue of new stock or by loan," June 5, 1852.

37. Journal of the House of Delegates, 1852, Richmond, VA. 237.

38. Ibid. 368-369 (April 10, 1852). "Report of the Committee for Courts of Justice in Relation to the Decision of the United States Supreme Court in the Wheeling Bridge Case," Annual Reports and Other Documents, 1852, Richmond, VA. Doc. 64.

39. Ibid.

40. "Resolution in relation to the decision of the Supreme Court of the United States in the Wheeling Bridge Case," adopted May 26, 1852, Acts of the General Assembly of Virginia, Passed in 1852, Richmond, VA.

41. Ibid. On receipt of his copy of the Virginia legislature's resolution George W. Thompson wrote Ellet that he thought the "incorporation of the idea of procuring a general law and hitching it on to our movement was ill-timed." According to Thompson, the bridge company still had "enough to do with our special case . . . without carrying all the hostilities into the future." George W. Thompson to Charles Ellet, Jr. May 30, 1852, Ellet MSS.

42. "Memorial of the Board of Trade of the City of Wheeling," in petitions to the Virginia General Assembly, n.d. [from internal evidence, after May, 1851], VSL.

43. Ibid.

44. Ibid.

45. Ibid.

46. Jesse Edgington, Communication relative to Several Petitions Praying for a Right of Railway through Virginia (Richmond, VA: Ritchies and Dunnavant, 1852).

47. For example, Charles W. Russell, attorney for the bridge company, also represented the City in the B. and O. dispute. Charles Ellet, Jr., engineer of the bridge

and a major stockholder in the bridge company, also served as engineer of the Hempfield. Morgan Nelson, a member of the board of managers of the bridge company, also served on the City Council. John Sobieski Brady, Mayor of Wheeling, was also a member of the bridge company board of managers. James Baker served on the boards of both the bridge company and the Hempfield Railroad. See Oliver I. Taylor, Directory of the City of Wheeling and Ohio County (Wheeling, VA: Daily Gazette, 1851); and "Return of Service of J.D. Hoover," July 3, 1854, in Pennsylvania, complainant (F. W. Hughes, Attorney General of Pennsylvania and Edwin M. Stanton, for complainant), State of Pennsylvania v. Wheeling and Belmont Bridge Company: Motions for Writ of Sequestration against the Corporation, Attachment against its Officers and Writ of Assistance to Execute the Decree of the Court (Pittsburgh, PA: W.G. Haven, 1854).

48. Charles W. Russell to Charles Ellet, Jr., May 28, 1852, Ellet MSS.

49. American Railroad Journal provided technical, financial and professional information for railroad officials. Scientific American was aimed at inventors, mechanics and manufacturers. See Robert V. Bruce, The Launching of Modern American Science, 1846-1876 (Ithaca, NY: Cornell University Press, 1987); and Daniel Hovey Calhoun, The American Civil Engineer: Origns and Conflict (Cambridge, MA: M.I.T. Press, 1960).

50. American Railroad Journal, March 13, 1852.

51. Ibid.

52. Ibid.

53. Ibid.

54. Scientific American, November 15, 1851.

55. Ibid.

56. Scientific American, April 17, 1852.

57. Scientific American, April 24, 1852.

58. Ibid.

59. Scientific American, June 5, 1852.

60. George W. Thompson to Charles Ellet, Jr., January 28, 1852, Ellet MSS. The strategy of vote-trading was initiated early in the process. On February 1, Ellet

(still in Harrisburg) wrote that he had been "taking measures to have an attack made on the Philadelphia Mint--by united the Virginia delegation on a bill to remove it to New York, on condition that New York will go for sustaining the bridge." He had also suggested a parallel move against the Pennsylvania state works by which the western trade would be diverted to the Ohio canal system and then northward to the Erie Canal, "on condition that Ohio and New York sustain our bridge." On Feburary 4, Russell began the complementary process in Richmond, informing Ellet by letter that he had "offered a resolution instructing our senators, &c. to go for removing the mint to New York." See Charles Ellet, Jr. to Elvira Ellet, February 1, 1852, Ellet MSS; Charles W. Russell to Charles Ellet, Jr., February 4, 1852, Ellet MSS; and Resolution of the Legislature of Pennsylvania relative to the Proposed Removal of the United States Mint . . . . 32d Cong., 1st sess. (1852) S. Mis. Doc. 52.

61. George W. Thompson to Charles Ellet, Jr., February 5, 1852, Ellet MSS.

62. Charles Ellet, Jr. to Elvira Ellet, March 7, 1852, Ellet MSS.

63. Wheeling and Belmont Bridge Company, Memorial of the Wheeling and Belmont Bridge Company to the Congress of the United States: The Wheeling Bridge Suit is a Part of a Railroad Controversy (Philadelphia: John C. Clark, 1852).

64. Ibid. 6.

65. Ibid. 7.

66. Ibid. 10.

67. Ibid. 11, 12.

68. Ibid. 17.

69. Ibid. 18.

70. Ibid. 19.

71. Ibid.

72. Ibid. 13.

73. Ibid. 21.

74. George W. Thompson, The Wheeling Bridge: An Argument for its Nationality and Preservation (Washington, DC:

Towers, [1852]).

75. Ibid. 5.

76. Ibid. 6.

77. Ibid.

78. Ibid.

79. Ibid. 6, 16.

80. Ibid. 10.

81. Ibid.

82. Ibid. 13.

83. Ibid.

84. George W. Thompson to Charles Ellet, Jr., March 28, 1852, Ellet MSS; and Thompson, The Wheeling Bridge: An Argument, 1.

85. William Wilkins, State of Pennsylvania v. the Wheeling and Belmont Bridge Company, Argument of Hon. William Wilkins in Behalf of the City of Pittsburgh, Read before the Committee on Post-Offices and Post-Raods of the House of Representatives of the United States (Philadelphia: Lippincott, Grambo, and Company, 1852).

86. Ibid. 6.

87. Ibid. 7.

88. Ibid. 12.

89. Ibid.

90. Ibid.

91. Charles Ellet, Jr., Remarks Touching the Wheeling Bridge Suit, Addressed to the Hon. G. W. Thompson (Philadelphia, John C. Clark, 1852).

92. Ibid. 4.

93. Ibid.

94. Ibid. 16-17.

95. Ibid. 17.

96. Ellet, Remarks Touching the Wheeling Bridge Suit, 9.

97. See John G. Burke, "Bursting Boilers and the Federal Power," Technology and Culture 7 (1966): 1-23.

98. Louis C. Hunter, Steamboats on Western Rivers: An Economic and Technological History (Cambridge, MA: Harvard University Press, 1949), 520.

99. The major losses of 1838 were the Pulaski in the East and the Moselle and Oronoko in the West. See Hunter, 532.

100. "What Constitutes an Engineer," Journal of the Franklin Institute 51 (1851): 55, quoted in Hunter, 522.

101. Report of the Secretary of the Treasury on the Statistics and History of the Steam Marine of the United States, 32d Cong., 1st sess. (1852) S. Ex. Doc. 42, 38.

102. Congressional Globe, 32d Cong., 1st sess., 1668.

103. Senator Robert M.T. Hunter (Democrat) of Virginia and Robert F. Stockton (Democrat) of New Jersey. The quotation is by Stockton, Congressional Globe, 32d Cong., 1st sess., 2426.

104. Senator Stephen R. Mallory (Democrat) of Florida and Thomas G. Pratt (Whig) of Maryland. The quotation is by Mallory, Congressional Globe, 32nd Cong., 1st sess., 1741.

105. Charles Ellet, Jr., The Wheeling Bridge (N.p., [1852]), 1-3.

106. See William Robinson, To the President and Directors of the Pennsylvania Railroad Company (Philadelphia, 1852). William Robinson, President of the Pennsylvania and Ohio Railroad (who also served on the board of directors of the Pennsylvania Railroad as the proxy of Alleghany County), had assumed the potential of the Hempfield Railroad to carry western traffic was dependent on the Wheeling bridge. He had warned that neither the Pennsylvania Railroad nor the City of Philadelphia should invest in the Hempfield because "the Ohio roads, even when constructed, cannot cross the Ohio at Wheeling," and because the Wheeling bridge was "totally unfit for railroad purposes." He found it "very evident" that no bridge "would ever be attempted in the face of the decree of the Supreme Court." Since railroads could only terminate oppostie Wheeling, the "inevitable" transshipment would prove "conclusively fatal to the Hempfield Railroad." Robinson, 6-7, 7, 5.

107. Wheeling Bridge [Petition of 100 Members of the Ohio Legislature], 32d Cong., 1st sess. (1852) H. Mis. Doc. 50; Wheeling Bridge--A Post Route [Resolutions of the Legislature of Indiana], 32d Cong., 1st sess. (1852) H. Mis. Doc. 63; Resolution of the Legislature of Virginia Respecting the Wire Suspension Bridge at Wheeling, 32d. Cong., 1st sess. (1852) S. Mis. Doc. 103; Wheeling Bridge [Committee on the Post Office and Post Roads], 32d Cong., 1st sess. (1852) H. Rept. 158.

108. 32d Cong., 1st sess. (1852) H. Rept. 158, 7.

109. Thompson resigned his House seat July 30, 1852 and Edson Olds lead the floor debate for bridge designation.

110. 32d Cong., 1st sess. (1852) H. Rept. 158, 17-34.

111. Ibid. 34.

112. Speech of Eben Newton (Whig, Ohio) Congressional Globe, 32d Cong., 1st sess., 973; and speech of Edson B. Olds (Democrat, Ohio) Congressional Globe, 32d Cong., 1st sess., 975.

113. As early as May Thompson had favored special designation of the bridge (see George W. Thompson to Charles Ellet, Jr., May 30, 1852, Ellet MSS), although the strategy does not figure in public discussion until near the end of the session.

114. Congressional Globe, 32d Cong., 1st sess., 1070.

115. Ibid. 1071.

116. Speech of David T. Disney, Congressional Globe, 32d Cong., 1st sess., 1044-1047.

117. Joseph A. Woodward (Democrat, South Carolina), Eben Newton (Whig, Ohio), John S. Millson (Democrat, Virginia), Thomas Y. Walsh (Whig, Maryland), and Edson B. Olds (Democrat, Ohio).

118. Speech of Carlton B. Curtis (Democrat, Pennsylvania), Congressional Globe, 32d Cong., 1st sess., 967. The two congressmen who agreed with Curtis were Thomas M. Howe (Whig, Pennsylvania) and Orin Fowler (Free Soil Whig, Massachusetts).

119. See Congressional Globe, 32d Cong, 1st sess., last two weeks of August, 1852.

120. Congressional Globe, 32d Cong., 1st sess., 1045.

121. Ibid. 2345, 2428, 2439, 2442, 2479.

122. Wheeling Intelligencer, September 1, 1852.

123. Charles Ellet, Jr. to Elvira Ellet, August 12, 1852, Ellet MSS.

124. Ibid. Anticipating success, Ellet (a major stockholder in both the bridge and Hempfield Railroad) bought stock in the western railroads and in the new Union Line of steamboat packets connecting Wheeling with Louisville. Charles Ellet, Jr. to Elvira Ellet, August 5, 1852, Ellet MSS.

125. "Memorial of the Wheeling and Belmont Bridge Company," in petitions to the Virginia General Assembly, filed December 8, 1852, VSL.

126. Ibid.

127. The festivities are described in great detail in [William Prescott Smith], A History and Description of the Baltimore and Ohio Railroad . . . . (Baltimore, MD: John Murphy and Company, 1853), 144-192.

128. The Wheeling and Belmont Bridge Company's loan request failed to receive a two-thirds majority (a constitutional requirement for such appropriations) on March 18, 1853. Journal of the House of Delegates, 1852-1853, Richmond, VA. Regarding the Pittsburgh and Steubenville Railroad, see Jesse Edgington, Letter of Jesse Edgington to the Legislature of Virginia (Richmond, VA, 1853).

129. Samuel Neel to Charles Ellet, Jr., January 31, 1853, Ellet MSS describing a letter from Russell to Edwin Fitzhugh.

130. Charles W. Russell to Charles Ellet, Jr., February 1, 1853, Ellet MSS. For example it was rumored that Henry Wise (later Governor of Virginia) had been employed by Pittsburgh interests for "a conditional fee of $10,000 provided he succeeds . . . to get the right of way." Samuel Neel to Charles Ellet, Jr., January 31, 1853, Ellet MSS.

131. See Samuel Neel to Charles Ellet, Jr., January 31, 1853 and Charles Ellet, Jr. to Elvira Ellet, February 10, 1853, Ellet MSS.

132. Daniel Lamb, Chairman of the Wheeling Railroad Committee to Charles Ellet, Jr. February 14, 1853, Ellet MSS.

133. Reverdy Johnson to the Wheeling and Belmont Bridge Company, February 17, 1853, Ellet MSS. The Wheeling Intelligencer of February 25, 1853 announced that "the Pittsburghers are attempting to press the spavined decree, before the Supreme Court, not liking to die without a struggle."

134. See Charles W. Russell to Charles Ellet, Jr., February 24, 1853, Ellet MSS.

135. Ibid.

136. Thomas S. Sweeney to Charles Ellet, Jr., February 19, 1853, Ellet MSS.

137. Wheeling Intelligencer, April 21, 1853. Within days Pittsburgh and Steubenville Railroad supporters found allies in Philadelphia who opposed the Hempfield subscription and sued for an injunction against such city action. Sharpless et al. v. Mayor of Philadelphia (1853) 21 Pa. St. Rep. 147. Louis Hartz in Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948) analyzes the case in the context of the "antisubscription" movement. See Hartz, 113-122.

138. National Intelligencer, December 17, 1853.

139. Alexander H.H. Stuart to Charles Ellet, Jr., December 13, 1853, Ellet MSS.

140. Ibid.

141. National Intelligencer, December 17, 1853.

142. Alexander H. H. Stuart to Charles Ellet, Jr., January 2, 1854, Ellet MSS.

143. Ibid.

144. Ibid.

145. Ibid.

146. Wheeling and Belmont Bridge Company, Memorial of the Wheeling and Belmont Bridge Company (N.p., n.d.). Date and attribution to Ellet based on James Baker to Charles Ellet, Jr., January 31, 1854, Ellet MSS. Quotations from page 6 of the Memorial.

147. Ibid.

148. Ibid. Edwin M. Stanton was attorney for Pennsylvania. John Holmes had received from the P. and C. Packet Line

over $2,000 "the amt. he is now in advance on acc. of the suit against the Wheeling Bridge." David Holmes had sued Morgan Nelson in David Holmes et al. owner of the steamboat "Hibernia" v. Morgan Nelson et al. (1850). James K. Moorhead, a Pittsburgh railroad executive and important Democrat, had testified against the bridge company in 1849. George Darsie, speaker of the Pennsylvania Senate, had also testified against the bridge company in 1849, and received funds from the packet line. Alexander Erwin (Irwin) built the engines of the P. and C. packets and had testified against the bridge in 1850. Robert M. Riddle was the Whig editor of the Pittsburgh Commercial Journal and Charles Shaler's brother-in-law. Lecky Harper was the Democrat editor of the Pittsburgh Post; his role in the Wheeling Bridge suit is unknown. See Pittsburgh and Cincinnati Packet Line: Minute Book, Historical Society of Western Pennsylvania; Record: State of Pennsylvania v. the Wheeling and Belmont Bridge Company, William Ottersan, and George Croft ([Washington, DC]: Gideon, [1850]); Reuben Hyde Walworth, Order of Reference of the Supreme Court of the United States in the Case of the State of Pennsylvania, Complainant, against the Wheeling and Belmont Bridge Company and Others, Defendants, with the Proofs Taken . . . (Saratoga Springs, NY: G.F. White, 1851); and Michael Fitzgibbon Holt, Forging a Majority: The Formation of the Republican Party in Pittsburgh, 1848-1860 (New Haven, CT: Yale University Press, 1969).

149. Ibid. 10.

150. Ibid. 11.

151. Ibid. 19.

CHAPTER XII
CHANGING THE LAW BUT NOT THE FACTS, 1856

Two years after the Wheeling Bridge decision, the "Wheeling wars" ended. In the spring of 1854 the Union Packet Line connected Louisville to Wheeling, the bridge carried wagons, droves and travellers across the Ohio River, the Baltimore and Ohio Railroad moved goods and passengers over the mountains and the Hempfield Railroad constructed its line toward Philadelphia. On May 17, 1854 the Intelligencer reported that Wheeling citizens had voted an overwhelming 803 to 35 to subscribe to $250,000 worth of additional Hempfield stock, and Wheeling's commercial prospects indeed looked as bright as Ellet had predicted two years before.[1] That afternoon the suspension bridge blew down.

On the following day "with feelings of unutterable sorrow" the Wheeling Intelligencer announced that "the noble and world renowned" Wheeling suspension bridge, "now lies a mass of ruins!"[2] High winds had destroyed the "mighty pathway spanning the beautiful waters of the Ohio, a link in the unbroken chain of trade and commerce between the East and the West."[3] The windstorm had set the cables and deck of the bridge lunging and twisting, and this action had pulled most of cables from their eastern anchorage and

snapped two cables in mid-span. The deck had broken into three pieces, many of the suspenders had snapped and the entire suspended system had fallen into the river. The large iron toll gate and eastern toll house had been demolished. To the editor "a lamentable accident has accomplished that which the enemies of this great work could not accomplish."[4] But he assured his readers that "the same imperative wants" which had demanded the bridge and "the same public spirit and enterprise" which had built it, would replace it "in the shortest space of time."[5]

Where Pennsylvania's four-year legal struggle to remove the bridge had failed, a windstorm of only a few minutes succeeded. But the bridge company's announcement of plans to rebuild the suspension bridge promised Pennsylvania a new opportunity to seek abatement. A reconstructed bridge would resurrect the decree of Pennsylvania v. Wheeling and Belmont Bridge Company (1852), but the issues in a new case would be different. In the earlier case Pennsylvania had argued that only Congress could regulate commerce on navigable waters (and erect bridges and define obstructions). Pennsylvania had therefore declared Virginia's charter to the bridge company unconstitutional, and the bridge a public nuisance. According to the Wheeling and Belmont Bridge Company Virginia could charter the bridge company and the bridge did not block the river. The Court had agreed with the bridge company to the extent that states could charter such internal improvements, but had found for Pennsylvania that

the bridge obstructed the river and had ordered its abatement. In the new case nuisance law arguments would wane as constitutional analysis of separation of powers and congressional exercise of the commerce clause would consume counsels' and the Court's energies.

While the wreckage was cleared, P. and C. packets passing Wheeling ridiculed the bridge company's misfortune. Coming upriver soon after the storm, the Pennsylvania (Captain John Klinefelter) lowered her chimneys at the site of the former bridge. The incensed editor of the Intelligencer declared that Klinefelter's action had been "done in derision and exultation over the destruction of this noble structure."[6] Coming downriver later in the week Klinefelter again lowered the Pennsylvania's chimneys "to the deck" as he approached the city, but on hearing the Pennsylvania's whistle, "the boys throughout the town" gathered at the wharf and "commenced pelting her with stones."[7] Since Klinefelter had drawn in beyond the City of Wheeling then lying at the wharf, the latter boat protected the Pennsylvania from damage. According to the Intelligencer "the officers richly deserved a severe rebuke," but Wheeling's Mayor merely notified the captain "that in the excited state of the crowd, it would be prudent for him to leave as soon as possible."[8] At that point the captain of the City of Wheeling "with a magnanimity" the Intelligencer editor believed "will never be reciprocated," put his boat out at the same time and kept on the inside of

the Pennsylvania "thus shielding her from the assaults of the boys."[9] No other incidents occurred.[10]

While the Intelligencer editor regretted violence to property and opposed "every species of mobocracy," he declared that the officers of the Pennsylvania had acted in a "most contemptible, insulting and soulless manner, in rejoicing over a great public calamity."[11] The editor of the Pittsburgh Commerical Journal, on the other hand, while not "at liberty to express regret over the casualty which has relieved the navigation of the Ohio River of an impediment, that has done serious injury to our steamboat interest," admitted that he "accept[ed] gratefully the supernal event" which had removed the bridge.[12]

By May 20, however, the bridge company had "unanimously resolved" to rebuild the bridge "as speedily as possible."[13] Charles Ellet, Jr. had been called to Wheeling to examine the wreck, and although he considered the damage "great," estimated that it would only "take four or five months to rebuild, but in less than two months can pass travel."[14] On the 21st he wrote his wife "the probability is that we shall soon enlarge the plan and convert the structure into a railroad bridge."[15] Three days later he noted "there is some danger of a renewal of the Pittsburgh opposition; but that may not happen," and in the meantime he intended to have the bridge "adapted now to railroad purposes."[16] He acknowledged that "the chief difficulty" standing in the way of conversion was the railroads' "want of means."[17] But

within the next month he sent letters to those lines planning to terminate at Wheeling to consider an agreement "by which the use and control of the bridge may be secured to the railroads."[18] In the meantime crews salvaged cables and suspenders and began to assemble the bridge materials for re-erection.

Reconstruction of the bridge had not gone unnoticed. On June 19, 1854 Pennsylvania served notice on the Wheeling and Belmont Bridge Company and its officers that they would apply to Justice Robert C. Grier for an injunction to restrain the company from erecting the bridge "at a less elevation than is prescribed by the decree of the Supreme Court of . . . May, 1852."[19] On June 26 Grier heard Pennsylvania's motion and arguments.

While the bridge company did not make a formal appearance, two of its agents attended the hearing. Ellet had written Robert T. Conrad and Francis Janvier (both residents of Philadelphia) asking them to attend.[20] Conrad responded "if it were possible to be surprised at anything that Pittsburgh does, I would be astonished at the folly as well as malice of this movement," and promised "to watch and report."[21] Janvier reported that "the whole of the proceedings did not occupy more than about twenty minutes."[22] According to Janvier, as soon as court opened Edwin M. Stanton read Pennsylvania's complaint and gave a "verbal description of the present state of things [at Wheeling]."[23] He then read affidavits supporting the

allegations presented in the complaint, Pennsylvania's notice to the bridge company of the pending request for an injunction and the proposed injunction "to which he asked the signature of the Judge."[24] Grier called for the bridge company's answer and on receiving no response, signed the order for the injunction.[25] The Supreme Court clerk at Washington issued the injunction on June 28, and the federal marshal served copies of it and the 1852 decree on the bridge company on July 3, 1854.[26]

While Pennsylvania proceeded in court, the bridge company continued to rebuild the bridge and to meet with railroad authorities to plan "for the enlargement of the bridge and the connection of the eastern and western lines on the island."[27] As a counter-offensive Ellet and Charles W. Russell also drafted a petition on the part of the bridge company "to impeach Judge Grier for corruption, usurpation, breach of law, oppression, invitation to bribery, &c."[28] By mid-July the bridge company's memorial to Congress had been presented by Representative Zedekiah Kidwell, a Virginia Democrat, and referred to the House Committee on the Judiciary.[29] Although Ellet admitted that the lateness of the session and the need for a two-thirds vote made conviction of Grier unlikely, the company still planned to "adduce facts enough to make him [Grier] very uneasy."[30]

On July 3 Ellet wrote his wife that the injunction had been served on the company and its officers, and that he had

taken "the Marshal up to the bridge and showed him what we are doing and proposed to do."[31] He assured her that the marshal "will be treated very civilly here," and that the bridge company was "just going straight ahead without any regard to the injunction" because "the power of Congress to regulate commerce and establish post roads is complete."[32]

On the 4th Ellet published a notice in the Wheeling Intelligencer about the plans of the bridge company. He acknowledged that the situation at Wheeling raised "the grave question" whether the powers to establish post roads and to regulate commerce among the several states "really resides in Congress alone" or "as is maintained by Judge Grier" is "subject . . . to the consent and approbation of the Supreme Court."[33] He admitted he had been served with an injunction commanding him to abstain from rebuilding the bridge unless in accordance with the 1852 decree, but he asserted that unless "obstructed by the Court," he would continue to repair the bridge which would be reopened to travel and the mails in two weeks.[34] Writing to his wife Ellet declared that if the marshal attempted to arrest the bridge company officers for contempt, he would "immediatly be arrested for false imprisonment and other trifles, and put in the county jail."[35]

The next week Pennsylvania served notice that the state would request a writ of sequestration against the bridge company and an order to its officers to stand committed for contempt on the grounds that they had disobeyed Grier's

injunction and the decree of May, 1852 by continuing to rebuild the bridge and by obstructing the Ohio River.[36] The company retaliated immediately with letters to Congress citing additional improprieties on the part of Grier, irregularities in the various legal proceedings against them, and a request to lay its "specifications" of these charges before the Judiciary Committee "at an early day in December."[37]

While the bridge company awaited the December term of the Supreme Court and the next session of the Thirty-third Congress, their temporary replacement bridge for common travel opened to the public July 26, 1854.[38] The company also awaited replies from the approaching railroads regarding their cooperation in the erection of a permanent railroad bridge, but as Ellet had noted in May, the railroads faced financial difficulties. The B. and O. had already reached Wheeling, but was negotiating a connection with the Central Ohio Railroad at Bellaire, four miles south of the bridge. The Cleveland and Wellsville, Marietta and Wheeling and Hempfield roads which had "all expressed a desire to consummate the arrangement" were prevented from doing so due to lack of funds.[39] The Hempfield in the fall of 1854 sent Ellet to Europe to try to sell its bonds.[40]

The Supreme Court heard Pennsylvania v. Wheeling and Belmont Bridge Company in December, 1854. Edwin Stanton appeared for the complainant; Reverdy Johnson and Charles W. Russell appeared for the bridge company.

Pennsylvania had filed motions for a writ of sequestration against the bridge company, a writ of attachment against its officers, a writ of assistance to execute the decree of 1852 and taxation of costs. The first third of the complainant's brief addressed procedural concerns by reviewing "modern practice" regarding contempt for breach of injunction.[41] Citing English and American decisions and treatises on equity and injunctions, the complainant's attorneys attempted to show that the matter was properly before the Court.[42]

The defense, on the other hand, filed a counter-motion to dissolve the injunction on the grounds of irregularities in its issuance.[43] Against the motions for sequestration and attachment the defense attorneys asserted that their clients could not be held in contempt because the 1852 Act of Congress had "legalized" the Wheeling bridge at a given height and they had rebuilt it at that height.[44] At the time of the earlier Wheeling Bridge case, the Court, in the absence of congressional action regarding obstructions in navigable waterways, had decided what constituted an obstruction. But the 1852 act, according to Johnson and Russell, represented a valid exercise of Congress' powers to establish post roads and to regulate commerce. From its enactment in 1852 the bridge no longer obstructed the river, and the bridge company's actions regarding its maintenance could not violate an irregularly issued injunction or the 1852 decree of the Court.[45]

The defense only had to present the Wheeling bridge law and then rest its case; Pennsylvania had the more difficult task of showing that the law was not valid. Most of the complainant's brief therefore addressed the question of whether "some pretended Act of Congress or other authority" had conferred on the bridge company the right to maintain the bridge.[46] And the Court's earlier decision in the Wheeling Bridge case restricted Stanton's potential arguments by admitting that Congress by means of the commerce clause possessed the power to define obstructions in the river. In order to win, Stanton had to acknowledge this general principle but prove that Congress had chosen an inappropriate method of exercising its power. Making his task more difficult, the question before the Court was new: previous commerce clause cases dealt with the limits of state power.[47]

Faced with a paucity of legal precedents, Stanton chose to rely on presidential veto messages. While these messages did not carry the force of law, where Congress had sustained the vetoes, it had acquiesced in limitations on its own authority. Stanton used these vetoes then, to show that the controversy currently before the Court had been settled by the political branches of the government long before Congress had attempted to legalize the Wheeling bridge. Besides appealing to the nineteenth-century concept of the departmental theory of resolving political-constitutional disputes, relying on vetoes also appealed to

party loyalty.[48] Stanton chose to quote Madison, Monroe and Jackson whose political and constitutional theories were intended to attract the democratic majority of the Court.[49]

Madison's veto of the Bonus Bill (1817) had declared that the power to regulate commerce "can not include a power to construct roads and canals," and that if such power did not belong to Congress "the assent of the states . . . cannot confer the power."[50] The constitutional limit on direct action equally limited indirect action. Stanton employed Madison's message to show that although Congress had merely "legalized" an internal improvement built under state authority, this indirect action was as unconstitutional in Madison's eyes as federal construction of the bridge.

Stanton's use of Monroe's veto of the Cumberland Road Bill (1822) related directly to Congress' designation of the Wheeling bridge as a post route. According to Stanton's excerpt from Monroe's veto message, Congress' power to "establish" post offices and post roads was restricted by the word's ordinary import and its use in the Articles of Confederation. Monroe stated that to "establish" meant to "fix" post office locations and "the routes by which the mails should be carried from one post office to another."[51] The power to fix the offices and routes carried with it no power to build or protect those routes. Following this line of reasoning Stanton could argue that the 1852 Act of Congress did not "legalize" the bridge.

Stanton's excerpt from Jackson's veto of the Maysville Road Bill (1830) returned to the broader issue of Congress' ability to undertake internal improvement projects. To Jackson federal grants had operated according to the principle that the works aided should be "of a general, not local, national, not state, character."[52] Coupling Jackson's veto message with Congress' failure to pass proposed Wheeling bridge acts in 1836 and 1844, Stanton could claim that Congress had already determined the bridge was not national in character. The 1852 act, then, was an unconstitutional attempt on the part of Congress to regulate local commerce.

Although justices Grier, John McLean and James Moore Wayne shared Stanton's belief that the 1852 act making the Wheeling bridge a post road was unconstitutional, none of these justices adopted Stanton's reasoning.[53] Justice McLean, who wrote the leading dissent, made only brief reference to Congress' power to establish post offices and post roads. McLean compared the 1852 act to an 1838 law designating all railroads and all navigable waters on which steamboats regularly traveled as post routes.[54] According to McLean in 1838 Congress had merely required "all boats and railroad cars to deposit in post offices all letters" so that postage could be charged.[55] Such a designation gave the government no right or interest in these lines of communication unless the mail was obstructed. The idea that making the bridge a post road "would exempt it from the

consequence of being a nuisance" was "wholly unsustainable" to the justice.[56]

More importantly McLean found the 1852 law violated Article 2 Section 9 of the Constitution which declared "that no preference shall be given, by any regulation of commerce or revenue, to the ports of one state over those of another." The act of 1852 in effect declared that steamboats "plying to and from Pittsburgh should not use chimneys more than forty feet high" in order to protect the Wheeling bridge.[57] Walworth had shown in the earlier case that steamboats with lower chimneys ran less efficiently and cost their owners more to operate. In the earlier case these disadvantages had been shown to injure materially Pennsylvania's commerce. If the bridge injured the commerce of Pennsylvania, McLean asked, "how much greater [was] the injury to the port of Pittsburgh?"[58] Paraphrasing Chief Justice Marshall, McLean concluded "that Congress could do many things, but . . . could not alter a fact."[59] The bridge remained an obstruction, and the 1852 act was unconstitutional.

The majority of the Court disagreed. Writing for the majority Justice Samuel Nelson found that although the bridge "still may be an obstruction in fact, [it] is not so in the contemplation of the law."[60] The decision of the earlier bridge case had found the bridge to conflict with Acts of Congress regulating the navigation of the Ohio River. In the meantime Congress had "regulated the

navigation consistent with its [the bridge's] preservation and continuation" so that the bridge now existed under "the concurrent powers of both governments."[61]

Choosing not to consider whether Congress could legalize the bridge under the authority to establish post offices and post roads, Nelson declared "it must be admitted that it is, at least, necessarily included in the power conferred to regulate commerce among the several states."[62] While the minority of the Court insisted that the 1852 Act of Congress was void because it gave preference to one port over another, Nelson stated that the law was not inconsistent with "the true meaning of that provision."[63] After all the improvement of rivers and harbors and the construction of lighthouses provided special advantages to some ports over others. But the preferences were incidental. According to the majority the act related to the Wheeling bridge fell into the same category and was therefore a valid exercise of the commerce power.

The majority believed "as a general proposition" that Congress could not annul the judgment of the Court, especially as to private rights.[64] But in the earlier Wheeling Bridge case, the obstruction of the river had interfered with a public right secured by federal statutes relating to licensed vessels. While that part of the earlier decree relating to costs remained unaffected by subsequent law, the part of the decree relating to abatement of the obstruction of a public highway had not

been absolute. Congress had the ability to define obstructions and had done so subsequently in the 1852 law, "so that the bridge is no longer an unlawful obstruction."[65] The majority declared "it is quite plain" the decree could no longer be enforced.[66] They therefore dissolved the injunction and denied the motions for sequestration and attachment.[67]

In 1856 the bridge company returned to Court to request a bill of review of costs in the 1851-1852 case and for retaxation of them.[68] The Court denied the review and retaxation on the grounds that both parties had had the opportunity to object and had waived exceptions to the costs filed. According to Nelson "there must be an end of litigation."[69]

The Court recognized that the second Wheeling Bridge decision involved less the issues of competing transportation systems than the role of branches of government in resolving conflicts. Justice Nelson writing for the majority (including Justice Benjamin R. Curtis who had formulated the Cooley rule and Chief Justice Roger B. Taney who had written the Genessee Chief opinion) upheld the designation of the bridges as an exercise of Congress' commerce power. Even Justice Peter V. Daniel, usually given to denying increases in the federal commerce power, concurred by stating that Congress had no doubt "acted wisely, justly and strictly within their constitutional competency."[70]

The Court had never before found an Act of Congress to violate the commerce power. Notable Supreme Court decisions related to commerce had either identified unconstitutional state laws or upheld state exercise of concurrent commerce power when the intent related to a valid police function. In the second Wheeling Bridge case the justices' choices were not as clearcut. If the Court continued in the posture of the 1852 decision, the justices would have to find the federal statute unconstitutional, and no Act of Congress had been declared unconstitutional since Marbury v. Madison in 1803. Since the first bridge decision, Pennsylvania had authorized the sale of the public works whose injury had been the cause of the original suit. Confirmation of the first decision would destroy the bridge and compensate Pennsylvania for damages to public works which it had replaced with a railroad.

The Court chose to reverse the effect of its previous decision and accept that Congress had exercised its commerce power to protect the bridge. But the legislation and therefore the second decision were restricted to one crossing; bridge promoters lobbied Congress for each subsequent crossing of a navigable stream and later federal statutes legalized other bridges of similar configuration and dimension. According to Hurst's thesis these statutes released the creative energy of railroad companies to bridge navigable waterways and create a national railroad network. But such a description omits the complementary aspects of

bridge law and bridge engineering as well as the interaction of bridge design and the technology of river craft.

Notes

1. Wheeling Intelligencer, May 17, 1854.
2. Wheeling Intelligencer, May 18, 1854.
3. Ibid.
4. Ibid. One small child was slightly injured by flying debris. There were no other casualties. Railroad Record, May 25, 1854.
5. Wheeling Intelligencer, May 18, 1854.
6. Wheeling Intelligencer, May 22, 1854. The Pennsylvania had recently replaced the Messenger #2 in the P. and C. Packet Line.
7. Ibid.
8. Ibid.
9. Ibid.
10. On May 24 the Wheeling Intelligencer reported that Klinefelter had telegraphed an apology to the Mayor of Wheeling.
11. Wheeling Intelligencer, May 22, 1854.
12. Pittsburgh Commerical Journal, May 19, 1854.
13. Wheeling Intelligencer, May 20, 1854.
14. Charles Ellet, Jr. to Elvira Ellet, May 20, 1854, Charles Ellet, Jr. Papers, Engineering Library, University of Michigan (hereafter cited as Ellet MSS).
15. Charles Ellet, Jr. to Elvira Ellet, May 21, 1854, Ellet MSS.
16. Charles Ellet, Jr. to Elvira Ellet, May 24, 1854, Ellet MSS.
17. Ibid.
18. [Charles Ellet, Jr.] to C. Prentice, President; [Charles Ellet, Jr.] to Willim P. Cutler, President;

[Charles Ellet, Jr.] to Benjamin Latrobe, Engineer; June 17, 1854, Ellet MSS.

19. "Notice of Intent to Apply for a Writ of Injunction," and "Notice of Service, June 22, 1854," in Pennsylvania, complainant (F.W. Hughes, Attorney General of Pennsylvania and Edwin M. Stanton, for complainant), State of Pennsylvania v. Wheeling and Belmont Bridge Company: Motions for Writ of Sequestration against the Corporation, Attachment against its Officers and Writ of Assistance to Execute the Decree of the Court (Pittsburgh, PA: W.G. Haven, 1854), hereafter cited as Motions.

20. Robert T. Conrad was a stockholder in the bridge company, President of the Hempfield Railroad and Mayor of Philadelphia. Janvier was a personal friend.

21. Robert T. Conrad to Charles Ellet, Jr., June 24, 1854, Ellet MSS.

22. Francis Janvier to Charles Ellet, Jr., June 26, 1854, Ellet MSS.

23. Ibid.

24. Ibid.

25. "Order to file a Bill of Complaint and Issue an Injunction, June 26, 1854," in Motions.

26. "Writ of Injunction to the Wheeling and Belmont Bridge Company, et al., issued June 28, 1854," in Motions; and "Return of Service, J.D. Hoover, July 3, 1854" In Motions. Hoover was a Marshal of the District of Columbia.

27. Charles Ellet, Jr. to Elvira Ellet, June 30, 1854, Ellet MSS.

28. Ibid.

29. Case of Hon. R.C. Grier . . . , 33rd Cong., 2d sess. (1855) H. Rept. 147.

30. Charles Ellet, Jr. to Elvira Ellet, July 11 and July 14, 1854, Ellet MSS.

31. Charles Ellet, Jr. to Elvira Ellet, July 3, 1854, Ellet MSS.

32. Ibid.

33. Wheeling Intelligencer, July 4, 1854.

34. Ibid.

35. Charles Ellet, Jr. to Elvira Ellet, July 10, 1854, Ellet MSS.

36. "Motion for a Writ of Sequestration, July 14, 1854;" "Motions for Writs of Attachment, July 14, 1854;" and "Service of Notice, November 27, 1854" all contained in Motions.

Pennsylvania made similar motions for sequestration, attachment, taxation of costs and writ of assistance, on November 11 and 13, 1854 and served on the Wheeling and Belmont Bridge Company and its officers on November 16, 1854.

37. M.H. Houston to Frederick P. Stanton, Chairman of the House Committee on the Judiciary, July 18, 1854; Charles Ellet, Jr. to Frederick P. Stanton, July 18, 1854; Charles Ellet, Jr. to Hon. Z. Kidwell, July 22, 1854; and James Baker to Charles Ellet, Jr. August 6, 1854, all Ellet MSS.

38. Wheeling Intelligencer, July 27, 1854.

39. Wheeling Intelligencer, October 3, 1854.

40. According to Alfred Chandler increased competition among the railroads in the early 1850s for scarce capital forced companies to search in the larger capital markets of Europe. See Alfred D. Chandler, Jr., The Visible Hand: The Managerial Revolution in American Business (Cambridge, MA: Belknap Press, 1977), 89-94. Ellet represented the Hempfield, the Central Virginia Railroad and the Wheeling and Belmont Bridge Company on his trip. See Robert T. Conrad to Messrs. Hope, September 25, 1854; Wood Bouldin to Hon. Mr. Bedinger, September 27, 1854; Charles Ellet to Baring Brothers, November 9, 1854, Ellet MSS.

41. Pennsylvania, complainant (F.W. Hughes Attorney General of Pennsylvania and E.M. Stanton, for Complainant) State of Pennsylvania v. Wheeling and Belmont Bridge Company: Complainant's Brief (N.p., [1854]), hereafter cited as Complainant's Brief, 1854. Complainant's arguments have not survived.

42. The complainant must have realized that the defense would contend that the injunction and contempt citations had been irregularly issued. Among the headings of the complainant's brief are "This injunction was regularly allowed and issued;" and "Breach of injunction even if irregularly issued, is a contempt."

43. Wheeling and Belmont Bridge Company, defendants (Reverdy Johnson and Charles W. Russell for Defendants), State of Pennsylvania v. Wheeling and Belmont Bridge Company: Brief for Defendants (N.p., 1854). The defense arguments do not survive. According to the brief the injunction had been awarded without sufficient notice to the defendants, it had been awarded by a judge of a different circuit from that in which the injunction would operate, it had been awarded without requiring bond, and it had been awarded to carry into effect a decree from a former suit.

44. Ibid.

45. Ibid. Ellet had remarked in a letter to Elvira Ellet on September 12, 1854, Ellet MSS: "I shall not be much needed for the bridge defense. It is not intended to make any defense."

46. "Motion for Injunction, [approximately June 19, 1854]," in Motions.

47. The only quotation from a case touching on the commerce clause included by Stanton was "[l]aws for regulating the internal commerce of a state, and those which respect turnpike roads, ferries, &c. are not in the exercise of a power to regulate commerce within the language of the Constitution," from Gibbons v. Ogden 9 Wheaton 203. The same quotation had been used by Reverdy Johnson in defense of the bridge charter in 1851.

48. According to Kermit L. Hall "Under the departmental theory the political branches had responsibility for political-constitutional controversies within their spheres, and the judicial branch assumed the role of settling legal-juridical questions, overseeing the rule of law." Kermit L. Hall, The Supreme Court and Judicial Review in American History (Washington, DC: American Historical Association, 1985), 4.

49. Justices McLean, Wayne and Taney had been appointed by Andrew Jackson, although McLean and Wayne by the 1850s were Whigs. Justices Catron, Daniel, Nelson, Grier and Campbell were also Democrats. See John R. Schmidhauser, "Judicial Behavior and the Sectional Crisis of 1837-1860," Journal of Politics 23 (1961): 621.

50. Complainant's Brief, 1854, 14 quoting from Madison.

51. Ibid. 16-17, quoting Monroe.

52. Ibid. 22, quoting Jackson, quoting Madison's Bonus Bill veto.

53. Grier's brief dissent (18 Howard 449) stated his concurrance with Justice McLean "that Congress cannot annul or vacate any decree of this Court." To Grier such an assumption of power "is without precedent, and, as a precedent for the future, it is of dangerous example."

Wayne's brief dissent (18 Howard 450) found "no power in Congress to interfere with such a judgment" of the Supreme Court, nor did he believe that the majority had properly interpreted Congress' intent in its 1852 act. Wayne stated his concurrance "with many of the views" of McLean, but promised to "take another opportunity to express my opinion fully." According to Alexander A. Lawrence in James Moore Wayne, Southern Unionist (Chapel Hill, NC: University of North Carolina Press, 1943), he never found the opportunity (101).

The dissents of justices Wayne and McLean were surprising given their strong advocacy of Congress' exclusive commerce power in their majority opinions in the Passenger Cases (7 Howard 283) and their dissents on the same grounds in Cooley (12 Howard 299). Justices McLean's and Grier's dissents can be better understood on a personal level. McLean's opinion in the first bridge case was effectively overturned in the second case, while Grier's injunction was overruled.

54. 5 U.S. Laws 283.

55. 18 Howard 441.

56. 18 Howard 442.

57. 18 Howard 445.

58. 18 Howard 447.

59. 18 Howard 439.

60. 18 Howard 430.

61. Ibid.

62. 18 Howard 431.

63. 18 Howard 433.

64. 18 Howard 431.

65. 18 Howard 432.

66. Ibid.

67. The two points in question related to whether the injunction had been properly issued and whether the actions of the bridge company and its officers were in contempt of Court. Justice Nelson as well as justices Grier, Wayne and Curtis believed that the injunction had been properly issued, however justice Nelson acknowledged that "some of the judges [of the majority] also entertain doubts as to the regularity of the proceedings." (436). Justice Daniel disagreed in a stinging denouncement of Justice Grier's actions (450-458). On the matter of whether the bridge company and its officers could be charged with contempt, justices Catron, Campbell, Taney and Daniel believed the 1852 act "afforded full authority to the defendants to reconstruct the bridge" (436), and therefore denied the motions. Justice McLean, who believed the 1852 act was unconstitutional held that "it may save the defendants from the contempt charged." (448). Justices Nelson, Grier, Wayne and Curtis felt the attachment and sequestration should issue, Justice Grier finding the defendants' actions as "a wanton contempt of the process of the Court." (449).

68. 18 Howard 460.

69. 18 Howard 463.

70. 18 Howard 458.

CHAPTER XIII
"KNOTTY QUESTIONS" AND THE WHEELING BRIDGE CASE

Nineteenth-century law has been seen by James Willard Hurst to support the release of creative energy to benefit society.[1] In a refinement of the Hurst thesis, Stanley Kutler has shown that instrumental law favored venture capital at the expense of vested interests.[2] According to these legal historians and others, nineteenth-century legislators promoted private initiative at the expense of long-range public considerations. Judges of the period endorsed legislative allocations, creatively destroyed vested capital and protected new forms of property. The pervasive pragmatism which characterized the era, coupled with the drift and default of public decisionmaking, guaranteed expedient responses to public needs.

Hurst contended that lawmakers in the nineteenth century were responsive, if not necessarily responsible. Legislators met demands for services by distributing charters, granting subsidies, transferring the right of eminent domain, providing for toll collection and limiting liability. The antitaxation bias of the community prevented the growth of government agencies and left regulation to the marketplace. Historians studying state intervention in

the economy in the first half of the nineteenth century, such as Oscar and Mary Handlin and Louis Hartz, found that inadequate regulation left the public interest unprotected.[3] At mid-century federal regulatory agenices consisted of the Patent Office and the Steamboat Inspection Service. Studies of the former suggested that patents were issued based on whether the specifications of the request met certain standards of patentability and that the courts settled questions of validity and conflicting claims.[4] Studies of the steamboat inspection law of 1838 acknowledged that its "hopelessly casual and inadequate" administration led to almost immediate demands for revision.[5]

Historians probing the transformation of government from party-centered to bureaucratic authority identified significant growth in the regulatory state in the last quarter of the nineteenth century.[6] For example, during that period congressional committees assumed stable roles as miniature legislatures, while civil service reforms and new independent regulatory commissions created a federal bureaucracy to cope with the needs of industrial society. These historians found Congress' passage of the Interstate Commerce Act in 1887, in response to the discriminatory rate practices of railroads, as the benchmark of the growth of "national administrative capacities." But railroad demands to cross navigable rivers had challenged Congress' commerce power more than a quarter of a century earlier and Congress had responded with the first bridge law. Beginning with the

Wheeling Bridge case in 1849, over the next forty years the three branches of the federal government fashioned a national bridge policy based on the incremental development of a consistent body of laws which balanced the needs of land and water transport and the changing capabilities of their technologies.[7]

In the Wheeling Bridge case the distributive policies of various levels of government conflicted.[8] The bridge sanctioned by state charter and partially financed by city funds obstructed steamboat commerce supported by federal improvements along the upper reaches of the Ohio River. The blockage of steamboats injured state investment in the Pennsylvania Main Line.

At mid-century state and national legislative support provided no clear advantage to either steamboats or railroads; the matter of precedence was to be decided by the Court's definition of obstruction in the Wheeling Bridge case. The Court's reference of the matter to a commissioner determined that the river-Main Line interests lost the first round on the question of obstruction. Had the Court accepted Pennsylvania's 1849 argument, <u>any</u> detention of water traffic would have constituted an obstruction of navigation. Instead, the Court asked the commissioner to grapple with degrees of obstruction and alternative bridge designs.

The commissioner's report and conclusions demonstrated the clash of contemporary professional opinion on the impact

of bridge design on steamboat operation. Reuben Hyde Walworth and the engineer retained to aid him reported to the Court that of the 230 boats which plied the Ohio River run to Pittsburgh, the bridge obstructed only the seven packets of the Pittsburgh and Cincinnati Line. But each of these seven packets annually carried an average of 30,960 tons of freight and 12,000 passengers; collectively they conveyed one-half of the goods in value and three-fourths of the passengers between Pittsburgh and Cincinnati.[9] The engineer analyzed eight bridge modifications which would lessen or effectively eliminate obstruction of the river. Walworth recommended raising the bridge to 120 feet for a level span of 300 feet.

On hearing the arguments of counsel and reviewing the commissioner's report, the Court divided on the question of obstruction and on the adequacy of the commissioner's remedy. The majority found against the bridge and ordered that it be raised to 111 feet or taken down. The bridge company requested that the Court consider a draw span as a means to clear the waterway and at the same time retain the bridge. After again hearing arguments the Court agreed that if the western channel of the Ohio River could be made safe and unobstructed by means of a 200 foot draw span, commerce would suffer no appreciable injury and the suspension bridge could remain in place.

The parties, the commissioner and the justices disagreed as to what constituted an unobstructed waterway

and by extension the relative importance of transportation technologies. The majority and minority justices also quarrelled over how to settle conflicts involving obstructions of navigable waterways. Chief Justice Roger B. Taney and Justice Peter V. Daniel held that so long as Congress had not acted, regulation of commerce should be left to the states. On the other hand the majority found that while Congress had not declared whether states could construct bridges over the Ohio River, Congress had regulated navigation on it. The majority opinion maintained that Congress had the exclusive right to determine such matters of commerce between the states. In the absence of a federal statute defining obstructions in navigable waterways, it was incumbent on the Court to decide whether the bridge obstructed the river and if so, to provide a remedy.

In the 1852 session Congress authorized both land and water improvements and supported bridges over navigable rivers to the extent that the Wheeling bridge was lawful, but future bridge proprietors had no clear indication of a national policy regarding spanning navigable streams. Congress' unwillingness to regulate conflicting land- and water-based transportation reflected an inherent distrust of stronger federal government and its customary reliance on distributive policies. For example, at the same session Congress passed a slate of river and harbor improvements and substantial railroad land grants. Individual designation of

the bridge followed this pattern of congressional action and at the same time avoided the controversy over the relative rights of land and water traffic to block each other. The only regulatory measure which passed the session was the steamboat inspection law and Congress had only overcome its hesitancy because destruction of life hung in the balance.

Congressmen who opposed the steamboat law had not questioned the purpose of the act, but had disputed the power invoked and the method employed to protect the lives of passengers and crew. In the bridge debates, however, questions of purpose, power and method were all hotly contested. Anticipating this opposition, bridge advocates had not pressed direct regulation of bridges by establishing acceptable clearances or indirect regulation by limiting steamboat chimney height, but had settled on what appeared to be the lesser legislative evil--protection under the authority to designate post roads. Expediency had been an important factor in this choice, but more importantly, designation was an individual decision, not a policy.[10] To congressmen trying to hurry through the last bills of the session, the Wheeling bridge law did not commit the nation to a future policy, but distributed one more federal benefit to one more internal improvement project.

In the floor debates leading to passage of the Wheeling bridge act, two Ohio representatives, Eben Newton (Whig) and Edson B. Olds (Democrat) volunteered that several railroads were approaching the Ohio River and anticipated crossing

it.[11] In the next five years Congress provided 18,000,000 acres in ten states to forty-five railroads.[12] Granting huge tracts of land to extend rail lines in the Mississippi Valley increased the potential number of bridge sites. Congress recognized what most of the Court had not: railroads would demand the ability to cross streams in order to avoid costly transshipment. The Wheeling bridge, although not designed to carry railroad traffic, symbolized the potential of that traffic.

Congress also seemed more attuned to economic change. The availability of farm land in the West, rising prices for grain and increasing efficiency of production led to wider settlement and a thirty-three percent increase in agricultural output between 1848 and 1854.[13] Railroad construction also had its highest nineteenth-century rate of increase between 1849 and 1854, in part because of expanding settlement, but also because gold discoveries in California created new capital.[14]

Western production increased so rapidly that all channels of transportation continued to grow in absolute terms throughout the 1850s: freight receipts doubled at New Orleans, tripled at Buffalo, and quadrupled at Pittsburgh and Wheeling. But this absolute growth masked relative shifts.[15] The state canal systems of Ohio, Indiana and Illinois pulled the crops of those states toward the Great Lakes and Buffalo, and away from the Ohio-Mississippi waterway. Although the value of receipts at New Orleans

continued to grow, the major part of that growth was attributable to southern staples of cotton, sugar and molasses.[16] By 1855 New Orleans no longer received substantial amounts of New West grain or flour; between 1853 and 1857 New Orleans also lost the midwestern provisions trade.[17]

Railroad development was an important part of the shift away from the Ohio-Mississippi River system. Between 1850 and 1856 railroad mileage in the Midwest increased from 1,276 to 7,024 miles.[18] At mid-century no railroad offered direct competition to the river system and the only railroad crossing the eastern mountain barrier linked Savannah to Chattanooga. Three years later the New York Central, Erie, Pennsylvania and B. and O. railroads connected the seaboard to the western waters, and the rail line between Pittsburgh and Cincinnati competed directly with the river trade.[19] In 1854 railroads joined Cincinnati to Louisville and Cincinnati to Wheeling. The new lines drastically reduced distances and trip times. For example, trip time between Pittsburgh and Cincinnati by steamboat averaged about three days, 6 hours; freight trains covered the distance in one and one-half days; passengers trains took fifteen hours.[20]

Accommodations on the early trains were far from ideal, but passengers shifted to them almost immediately.[21] The railroads' competitive advantages of frequency and regularity of service and greater territorial coverage also led to the transfer of the more valuable freight and

merchandise. By the mid-1850s combinations and operational innovations (such as through tickets and waybills) had reduced the inconveniences of forwarding from line to line. Widely publicized explosions and fires fostered public distrust of steamboat travel, while the droughts of 1854 and 1856 closed the rivers and canals for much of the year and discredited water transit.[22]

The Pennsylvania Main Line suffered almost immediately from the competition of the Pennsylvania Railroad. By 1855 the Board of Canal Commissioners reported "not only has trade on this [canal] line been diminishing ever since the completion of its rival," but "the principal transporters on the canal left it altogether in July last, and the Pennsylvania Railroad has since that time monopolized the entire carrying trade."[23]

The high costs of maintaining and operating the canal and the portage railroad led to increased public interest in disposing of it.[24] Whigs and Democrats in the legislature argued over whether to sell the state-owned system, Democrats supporting its retention, and Whigs demanding an end to the state enterprise.[25] In May, 1855 the legislature offered to sell the Main Line for $7.5 million, and in December the Pennsylvania Railroad agreed to buy the canal and portage railroad at this figure.[26]

Railroad competition in Virginia also affected that state's internal improvement investments. The James River and Kanawha Company's project to cross the mountains by

canal had long been the centerpiece of state efforts. During the 1830s and 1840s the project had been alternately neglected by the Democrats and fostered by the Whigs. During the 1850s Old Dominion Democrats again controlled the legislature, the James River and Kanawha project languished, and state funds were allocated to other endeavors including a railroad along the same route.[27]

By the mid-1850s the Democratic legislature had incorporated the Covington and Ohio Railroad over the protest of the old company, and had funded construction of the most difficult section of the line.[28] Wheeling and southwestern Virginia legislators (whose constituents enjoyed the advantages of the B. and O. and Virginia and Tennessee railroads respectively) opposed other appropriations for the Covington and Ohio Railroad.[29] While Virginia's legislators argued over appropriations for the central railroad line, the B. and O. and its subsidiary Northwestern Railroad carried western products to Baltimore.

The "rather coquettish" wooing of Baltimore and Wheeling in the 1840s finally connected the two cities by the B. and O. in January, 1853.[30] Anticipating the success of the railroad, Wheeling businessmen in the fall of 1852 announced the creation of the Union Packet Line of steamboats connecting the B. and O. terminus on the Ohio River with Louisville.[31] The line of six new, first-class boats entered service at the beginning of the boating season in 1853, competing with the P. and C. line which

offered connections to Philadelphia by way of the Pennsylvania Railroad.[32]

By the second year of operation only four boats remained in the Union Line, and by 1855 the remainder had disbanded and all but one transferred to other trades.[33] The P. and C. line maintained regular service through 1855 when the last seven boats were dismantled or transferred to the Mississippi trades.[34] William Thaw (who owned interests in five P. and C. boats) later claimed that the competition of the two lines had brought "death to both."[35] He remarked that had the last two P. and C. boats "been grounded on a bar, without insurance in 1853, and totally burned up, it would have been thousands of dollars saved to their owners."[36]

While ruinous competition forced the fast packets to leave the upper Ohio River trade, railroad projects in the region multiplied. In 1854 the Pennsylvania Railroad provided service east from Pittsburgh to Philadelphia, and the Ohio and Pennsylvania Railroad provided service westward toward Chicago.[37] Promoters of the Pittsburgh and Steubenville line had so far failed to get a Virginia charter to cross the panhandle, but they continued to lobby at Richmond for authorization for the line and a bridge at Steubenville.[38] At Wheeling the Baltimore and Ohio Railroad provided eastern service. The City of Wheeling's Railroad Committee also anticipated a western connection with the Central Ohio line from Columbus and a southwestern

connection with an extension of the Cincinnati and Marietta line. The Hempfield Railroad was expected to connect to the Pennsylvania Railroad at Greensburg, Pennsylvania and provide service to Philadelphia. When the Wheeling and Belmont Bridge Company began rebuilding the bridge after its collapse in 1854, they had written to each of the four railroads then expected to connect at Wheeling with a proposal to rebuild the bridge for railroad use.[39]

Three years later Pittsburgh's railroad connections had extended westward and new lines were anticipated to the east and north.[40] But Wheeling's connections had failed to develop.[41] The rebuilt suspension bridge at Wheeling had not been redesigned to accommodate trains, but railroads in the upper Ohio Valley hoped to secure charters for bridges at Parkersburg, Bellaire and Steubenville. In the interim transfer arrangements between lines were primitive. Justice Peter V. Daniel, returning from his circuit in the West in 1855, described the connection by "through ticket" on the Central Ohio and B. and O. railroads at Bellaire as an "abuse practiced upon travelers."[42] According to Daniel passengers with their baggage were deposited "on the margin of the river, amidst mud several inches in depth, . . . in a dark cloudy night, without shelter, without conveyance, and without guides; and thus left to clamber up the precipitous bank of the river, and to grope their way as best they could to the point at which they might reach the cars of the Baltimore road."[43]

Passengers could be left to fend for themselves, but the railroads had to arrange and handle transshipments of freight. In 1858 the President of the Central Ohio Railroad, negotiating one such transfer, informed the officers of the Baltimore and Ohio Railroad "that the proper cost of the transfer [of freight] between Bellaire and Benwood, independent of increased station expenses, at our very best rates, is equal to thirty miles of road."[44] Increasing railroad competition made reductions of the cost, delay and inconvenience of these transshipments an important aspect of railroad operation in the late 1850s.

Many of the logistical problems of the emerging railroad network remained unsolved in the pre-Civil War period. Two of the most intractable of these problems were the diversity of railroad gauges and the absence of a legal mechanism by which to secure approval for bridges over navigable waters.[45] When the Civil War broke out only two completed bridges spanned the navigable rivers of the West. Both had survived the concerted efforts of river interests to remove them. While the Wheeling and Belmont Suspension Bridge did not carry railroad traffic, the drawbridge over the Mississippi River at Davenport, Iowa carried the Rock Island Railroad.

The Rock Island Railroad Bridge represented a different technological choice from the suspension bridge at Wheeling. The railroad constructed a wooden Howe truss pivot drawbridge built on stone piers.[46] Spans between piers were

250 feet in the clear, with a pivot span of 284 feet. The central turntable pier which carried the pivot mechanism was forty-four feet wide and provided 120 foot openings on each side. Steamboat interests of the upper Mississippi River largely based at St. Louis opposed the bridge as an obstruction to the free navigation of the river and because the railroad carried by the bridge connected to St. Louis' commercial rival, Chicago.[47]

Shortly after the bridge was completed the Effie Afton, a St. Louis steamboat, collided with it. The resulting fire destroyed both the boat and a portion of the bridge, and the owner of the boat sued the railroad for damages on the grounds that the bridge obstructed navigation.[48] In 1855 evidence presented by the parties in federal circuit court included matters of steamboat operation and the condition of the river as well as whether the officers of the Effie Afton had exercised reasonable care. The defendant also presented evidence regarding the necessity of bridges for land transportation and the numbers of passengers and freight cars carried by the bridge. The jury failed to agree on a verdict and the bridge was allowed to remain.[49]

By the end of the antebellum period, then, federal courts had determined that two bridge configurations presenting two sets of dimensions did not obstruct navigation. But the decisions of the courts related only to the individual circumstances of the cases; they furnished no guarantees against further suits, should changes in

steamboats render the "lawful" dimensions obsolete. Unless bridge promoters lobbied for each crossing of a navigable stream and secured congressional sanction for their projects, they faced continual risk of suit. Designing bridges to equal or exceed the dimensions of the Wheeling or Rock Island bridges offered a potential solution to this vexing problem. But while engineers spanned greater distances with new structures and materials, the land and water technologies to be accommodated by bridges changed.

As passenger traffic shifted to railroads, steamboats and other river craft adapted to the new circumstances. In the period of fast packets, economy of operation had been sacrificed to speed in order to attract passengers. With the loss of the passenger trade, the need to compete with railroads for freight carriage shifted operational concerns to the reduction of costs. Larger boats and barge towing reduced both running expenses and capital outlay in relation to cargo capacity.[50]

As steamboats and barge tows became larger, trains became heavier and moved faster. In 1852 Ellet had designed a bridge to carry a railroad and highway across the Potomac River and had attributed the live load due to trains to 908 pounds per lineal foot.[51] The engineer of the Point Pleasant Bridge (Kanawha and Ohio Railroad) across the Ohio River, reported in 1887 that he had designed for a live load of more than 2,240 pounds per lineal foot.[52] Engineers designing longer and stronger spans developed rationalized

truss design, pin connections and the use of iron as the predominant structural material.[53]

In 1862 Congress provided enabling legislation for bridges across the Ohio River above the mouth of the Big Sandy River (eastern boundary of Kentucky) so long as they conformed to or exceeded one of two sets of criteria.[54] The first alternative required a high bridge with a main channel span of 300 feet, at least ninety feet above low water (these dimensions approximated the maximum headway of the Wheeling suspension bridge).[55] The second option required a bridge with a main channel span of 300 feet, at least seventy feet above low water and a pivot draw with openings of not less than 100 feet on each side of the pivot pier.[56] Both river and railroad interests considered the law experimental, largely because river interests could not agree on what they could safely concede regarding height and width of channel clearances, and railroads had not determined with certainty the safe limits of iron trusses.[57] In 1866 Congress enacted a similar law for nine bridges over the Mississippi River.[58]

In the post-war period increasing numbers of boat-bridge accidents and disputes over whether bridges obstructed navigation led Congress in 1870 to ask the Secretary of War for a report on the bridges over the Ohio River.[59] The report issued in April, 1871 discussed the bridges, recommended changes to better provide for navigation and offered a proposed "law for the future

regulation of bridges over the Ohio River."[60] According to the engineers who prepared the report the anticipated problems "demonstrate[d] the necessity of having some one of skill and judgment to represent the United States, and to decide upon the site of every bridge built under its laws," because "no general law could be adequate for all cases," and "some discretionary power should be lodged with some one."[61] In their proposed legislation the engineers had chosen the Secretary of War, placing "the whole subject under the control of a cabinet officer, whose position guarantees a due regard for the rights of both river and rail."[62]

The proposed law for bridging the Ohio River required bridge companies to submit plans to the Secretary who would examine them for compliance. He could appoint a Board of Engineers to examine and recommend modifications to design proposals and could authorize these changes, provided that free navigation was maintained. The proposed law also reserved to Congress the right to alter or amend the act to accommodate future demands of navigation. The next year Congress passed enabling laws for bridges over the Mississippi and Ohio rivers.[63]

In his Annual Report of 1873 the Secretary of War remarked that Congress had passed bridge acts "differ[ing] in the means or processes" by which "the interests of navigation" were to be secured.[64] Some laws required the approval of the Secretary of War; others only designated

appropriate dimensions and provided that disputes could be tried in federal district courts. Some companies derived their power to construct bridges from acts granting rights-of-way over federal lands or acts making grants of federal land for the construction of railroads. And some bridges had been built "without any authority or alleged authority from the United States."[65] The Secretary of War, therefore, "respectfully suggested that the attention of Congress be invited to this subject" of protecting navigable waterways from "such sources of injury".[66]

The Chief of Engineers reported in 1873 that if all authorized bridges were constructed, they would "seriously affect navigation" and "counteract" Congress' "beneficent policy" of improving western waters.[67] But Congress continued to take the changing needs of navigation into account. For example, the 1872 enabling law for bridging the Ohio River had increased the required horizontal clearance of the main channel spans to 400 feet and stipulated that all piers be constructed parallel to the current. In 1883 Congress increased Ohio River main channel clearance to 500 feet.[68] Yet Congress also passed increasing numbers of special bills related to river crossings.[69]

In 1888 Congress delegated to the Secretary of War the responsibility of determining if "any railroad or other bridge now constructed, or which may hereafter be constructed, over any of the navigable waterways of the

United States is an obstruction to the free navigation of such waters."[70] The new law provided for oversight of bridges authorized by state legislatures and those built under federal right-of-way grants.[71] The law also allowed the Secretary of War to require alterations to bridges which had met "legal" requirements when built but which had subsequently failed to meet the changing standards of unobstructed navigation. Congress passed similar provisions in 1890 and 1899.[72]

Bridge companies disputed the Secretary's findings almost immediately, and a well-known commerce law treatise of the period declared that it was "generally accepted" that Congress "cannot confer upon the Secretary of War the power to determine when and where bridges shall be built over the navigable rivers of the country," nor "give to the Secretary of War the right to declare that bridges lawfully erected are obstructions to free navigation."[73] The U.S. Supreme Court thought otherwise, and in a series of cases culminating in 1917 in Louisville Bridge v. United States (242 U.S. 409) decided that Congress could authorize the Secretary of War to require such bridge alterations.[74]

The Supreme Court first considered the relative rights of bridge builders and navigators in the West in the Wheeling Bridge case where they required the bridge company to either remove the bridge or raise it to 111 feet for a level headway of 300 feet (or build a draw span of 200 feet). Within six months Congress disputed the Court's

determination and designated the bridge legal as built. Subsequently Congress adopted the maximum vertical dimension of the Wheeling bridge as the minimum vertical clearance of high rise bridges. Ten years later Congress adopted a clear span of 300 feet when bridge builders indicated that such a truss span was feasible.

The Wheeling bridge, of course, exceeded the Court's horizontal requirement, but achieving the vertical dimension would have been very expensive. The higher elevation required expanded foundations, abutments and wing walls, taller towers and longer cables. The higher bridge also needed higher embankments and viaducts and longer rights-of-way.[75] At other sites these costs costs would be higher. The Court had equated an acceptable elevation with the level of high water plus approximately seventy feet for the passage of steamboats. But at Cincinnati high water was sixty-two and one-half feet (almost twenty feet higher than at Wheeling).[76] Embankments and viaducts at Cincinnati would have been even more expensive than at Wheeling. In addition to high first costs, the operating costs of pulling freight up steep grades also would have been high. The Wheeling and Belmont Bridge Company and Congress believed the Court's requirement for vertical clearance was prohibitive.

At first glance repeated bridging of rivers appears to have been accomplished at the expense of the right to navigate. For example the draw span, accepted by the Court

in 1852 as a solution to the problem of vertical clearance, soon created horizontal problems.[77] Once Congress declared the Wheeling bridge elevation legal, tall boats had to lower their chimneys. At the same time increased barge towing demanded greater horizontal clearance, and the narrow openings, slow response and frequent malfunctions of draw spans became the bane of river interests. The expense of operating the draws also led bridge owners to consider replacement. Although two justices had pointed out in 1852 that drawbridges had never been found nuisances at law, by the latter part of the nineteenth century they were nuisances in fact.[78]

On the other hand there were instances where instead of the law releasing creative energy to bridge rivers, the energy apparently flowed in reverse: advances in bridge technology brought about changes in the law. The 1862 enabling law for Ohio River bridges had required a 300-foot horizontal clearance only when the railroad planning to bridge the river at Steubenville believed it could build such a span.[79] The enabling law of 1883 expanded horizontal clearances to 500 feet only after two bridges--at Cincinnati and St. Louis--had exceeded the distance.[80]

While more bridges certainly created more potential impediments to navigation, improved bridge design could benefit both land and river traffic. The introduction of suspension technology brought savings in material and erection time and also eliminated obstruction of the

waterway during construction.[81] Suspension bridges also provided a significant increase in clear spans (over 1000 feet in the Wheeling suspension bridge compared with a maximum of 250 feet in the truss bridges of the early 1850s). Suspension technology also could be easily transferred: in western Virginia in the 1850s two suspension bridges were built over the Monongahela River, two over the Elk River and one over the Cheat River.[82]

Advances in truss bridge technology also offered benefits to both land and water traffic. Rationalized trusses saved material by introducing more efficient designs. With the introduction of cantilever trusses in the 1870s staging was no longer required, and the waterway could remain unobstructed during construction. New materials coupled with new truss designs greatly increased span lengths and reduced the need for piers which seriously affected the velocity of river currents and the width of the navigable channel. Fewer piers not only decreased the boatmen's risk of collision but also saved the bridge builders the cost of construction. And after 1888 the Secretary of War began to require owners of short-span bridges to alter them to conform to the newer long-span requirements.[83]

Analysis of the contemporary legal and technological climate shows that nineteenth-century American bridge policy was not indiscriminantly promotional. Admittedly Congress in 1852 declined to consider either direct regulation of

bridges by establishing acceptable clearances and configurations, or indirect regulation by restricting steamboat chimney heights. Yet federal bridge statutes were modelled on configurations and clearances which the Supreme Court had accepted in the Wheeling Bridge case. From 1872 on Congress sought and followed the advice of government engineers, charged the Secretary of War with protecting "the security of navigation" and required approval of all bridge plans and specifications.[84] In the third quarter of the nineteenth century the incremental development of consistent laws slowly resolved the "knotty questions" of policy related to balancing the conflicting needs of navigation and land transportation.[85]

Notes

1. James Willard Hurst, Law and the Conditions of Greedom in the Nineteenth-Century United States (Madison, WI: University of Wisconsin Press, 1956).

2. Stanley I. Kutler, Privilege and Creative Destruction: The Charles River Bridge Case (Philadelphia: J.B. Lippincott, 1971).

3. Oscar Handlin and Mary Flug Handlin, Commonwealth: A Study of the Role of Government in the American Economy, Massachusetts, 1776-1860 (Cambridge, MA: Harvard University Press, 1948; and Louis Hartz, Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948).

4. Frank D. Prager, "Historic Background and Foundation of American Patent Law," American Journal of Legal History 5 (1961): 309-325 and "Trends and Developments in American Patent Law from Jefferson to Clifford (1790-1870)," American Journal of Legal History 6 (1962): 45-63; and Carl B. Swisher, The Taney Period 1836-64, vol

5 of History of the Supreme Court of the United States (New York: Macmillan, 1974), 484-511.

5. John G. Burke, "Bursting Boilers and the Federal Power," Technology and Culture 7 (1966): 1-23; Louis C. Hunter, Steamboats on the Western Rivers: An Economic and Technological History (Cambridge, MA: Harvard University Press, 1949), 534.

6. Stephen Skowronek, Building a New American State: The Expansion of National Administrative Capacities, 1877-1920, (Cambridge: Cambridge University Press, 1982); and William E. Nelson, The Roots of American Bureaucracy, 1830-1900 (Cambridge, MA: Harvard University Press, 1982).

7. Constitutional and legal historians have considered Pennsylvania v. Wheeling and Belmont Bridge Company as part of "the developing pattern of the commerce power" (see Swisher, The Taney Period, 408-418) and as a "vivid example" of the use of statutory justification in the evolution of nuisance law (Paul M. Kurtz, "Nineteenth Century Anti-Entrepreneurial Nuisance Injunctions--Avoiding the Chancellor," William and Mary Law Review 17 (1976): 649-651.

8. As Harry Scheiber has shown, Hurst's model of policymaking may describe only one type of historic American legal process, that of distributive policy (see Harry N. Scheiber, "At the Borderland of Law and Economic History: The Contributions of Willard Hurst" American Historical Review 75 (1970): 753). And distributive policies tended to be "not policies at all . . . but highly individualized decisions," see Theodore J. Lowi, "American Business, Public Policy, Case-Studies, and Political Theory," World Politics 16 (1964): 689-90.

9. 13 Howard 574.

10. Expediency was important since the Court had required the bridge company to raise the bridge by February, 1853.

11. Congressional Globe 32nd Cong., 1st sess., 974, 975.

12. George Rogers Taylor, The Transportation Revolution 1815-1860 vol. 4 of The Economic History of the United States (New York: Harper and Row, 1951), 96.

13. Douglass C. North, The Economic Growth of the United States, 1790-1860 (New York: Norton, 1966), 209.

14. Ibid., 205-206. Railroad construction slowed briefly

due to the 1854 recession.

15. Computed from Tables A-1, A-2, and A-3 Erik F. Haites, James Mak and Gary M. Walton, Western River Transportation: The Era of Early Internal Development 1810-1860 Studies in Historical and Political Science, series 93, no. 2 (Baltimore, Johns Hopkins University Press, 1975), 124-128.

16. Taylor, 164.

17. John G. Clark, The Grain Trade in the Old Northwest (Urbana, IL: University of Illinois Press, 1966), 231.

18. Midwestern railroad mileage from North, 142. "Midwest" in 1850 refers to Ohio, Michigan, Indiana, Illinois and Wisconsin. The 1856 "Midwest" figure includes also Iowa and Missouri. In the United States Railroad mileage increased from 8,879 miles in 1850 to 30,636 in 1860. Computed from Taylor, "Railroad and Canal Mileage by Decades, 1830-1860", 79.

19. Louis C. Hunter, Steamboats on the Western Rivers: An Economic and Technological History (Cambridge, MA: Harvard University Press, 1949), 484-485.

20. Computed from Ibid., Tables 15 and 16, 490. The river distance from Pittsburgh to Cincinnati covered 470 miles; the railroad distance equalled 316 miles.

21. Hunter provides an excellent discussion of the "critical decade" of the steamboat on western waters, 481-520. The material in this paragraph is condensed from his presentation.

22. Even with the shift of merchandise and passengers to the railroads, water routes continued to play a large role in nineteenth-century transportation and steamboat tonnage on the western rivers grew through most of the Civil War era. Steamboats performed the complementary task of bringing western freight to rail heads for shipment east. The waterways also continued to carry most of the heavy, less-valuable western produce. Even in 1860 the New York Central, Erie, Pennsylvania and B. and O. railroads combined carried just under one half of the tonnage carried on the Erie Canal. Computed from Tables A-1, A-2, A-3 in Haites, Mak and Walton, Western River Transporation, 124-128. The B. and O. figures used in these tables represented only the through traffic from Wheeling. Substantial amounts of freight loaded at Cumberland, Maryland (east of the mountains) is not included.

23. Pennsylvania, Board of Canal Commissioners, "Annual

Report for the Fiscal Year ending November 30, 1855," Executive Documents, 1855, Harrisburg, PA.

24. Louis Hartz, Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948), 164.

25. Michael F. Holt, The Political Crisis of the 1850s (New York: John Wiley and Sons, 1978), 114-116.

26. In April, 1854 an act offering to sell the Main Line for $10 million had passed the legislature but no takers appeared. Final negotiations on the sale of the Main Line in 1857 led the incumbent Canal Commissioners to seek an injunction to restrain the Governor from consumating the sale. See Mott v. Pennsylvania Railroad Company 30 Pa. St. Rep. 9 (1858). Although the railroad took possession of the property in August, 1857, the decision in their favor was not reached until the following year. By 1859 Pennsylvania had divested itself of all other sections of the State Works. See Hartz, 175-180 and Willard R. Rhoads, "The Pennsylvania Canal," The Western Pennsylvania Historical Magazine 43 (1960): 234.

27. Political accord following the compromises of the state constitutional convention of 1851 produced a number of new western projects. Wheeling interests successfully lobbied for the Hempfield Railroad charter and against a Pittsburgh and Steubenville Railroad charter. Parkersburg interests secured a charter for the Northwestern Railroad connecting their city with the B. and O. line, and the Virginia and Tennessee Railroad in the southwestern portion of the state received generous state funding. Three studies touch on differing aspects of the Virginia internal improvement development: Charles Henry Ambler, Sectionalism in Virginia from 1776 to 1861 (Chicago: University of Chicago Press, 1910), 300-316; Isaac Fegley Boughter Internal Improvements in Northwestern Virginia: A Study of State Policy Prior to the Civil War (Pittsburgh, PA: University of Pittsburgh diss., 1930), 253-275; and Carter Goodrich, "The Virginia System of Mixed Enterprise: A Study of State Planning of Internal Improvements," Political Science Quarterly 64 (1949): 355-387.

One of the major compromises of the convention had changed the basis of representation in the House of Delegates, giving more seats to the western portion of the state. The effect was particularly noticeable in the area of internal improvements, for example, between 1850-1854 more turnpikes and railroads were chartered for the western section than in all preceeding years. See Ambler, Sectionalism, 301, 311.

28. Goodrich, "Virginia System," 373.

29. They were joined by Kanawha Valley coal and salt manufacturers who, after many years of unfulfilled promises, preferred funds to reconstruct the existing Kanawha River improvements to uncompleted visions. Ambler, Sectionalism, 314.

30. [William Prescott Smith], A History and Description of the Baltimore and Ohio Railroad (Baltimore: John Murphy and Company, 1853), 175. The quotation is from a toast proposed at the dinner in celebration of the line, held at Wheeling, January 12, 1853.

31. See Wheeling Intelligencer, November 13, 1852.

32. Minute Book, entry for December 8, 1852. Pittsburgh and Cincinnati Packet Line: Minute Book, Historical Society of Western Pennsylvania.

33. Hunter, 330 and S and D Reflector 5 (1968): 28-32.

34. Frederick Way, Jr., Way's Packet Directory, 1848-1983 (Athens, OH: Ohio University Press, 1983), entries for individual boats.

35. William Thaw to Robert P. Nevin, September 8, 1886. Thaw Papers, Historical Society of Western Pennsylvania.

36. Ibid. Captain Charles W. Batchelor of the Alleghany sold his interest in the boat in the spring of 1853 to one of the other owners. Batchelor believed "our trade was leaving us" because of the railroad connection between Pittsburgh and Cincinnati. "C.W. Batchelor, My Life and Times," S and D Reflector 3 (1966) 12.

37. The material in this paragraph relating to Pittsburgh is taken from Charles Ellet, Subscriptions to Western Railroads addressed to the President and Directors of the Pennsylvania Railroad Company (Philadelphia: John C. Clark, 1854), 3-16.

38. In 1853 promoters of the Pittsburgh and Steubenville Railroad built a line at private expense by purchasing a one hundred foot right of way across the Panhandle. The line was completed in July, 1854, and a daily passenger car ran each way for about six months but was discontinued. In May, 1860 the Virginia General Assembly incorporated the Holliday's Cove Railroad which took over the abandoned private line. Thomas S. Clarke (who with William Thaw had owned partial interests in five of the P. and C. packets) was elected

president of the Holliday's Cove Railroad which was consolidated with the Pittsburgh and Steubenville line in 1868. See "History of the Pittsburgh, Cincinnati and St. Louis Railway" in Appendix 1, J.A. Caldwell, History of Belmont and Jefferson Counties, Ohio and Incidentally Historical Collections (Wheeling, WV: Historical Publishing Company, 1880).

39. Charles Ellet, Jr. to presidents of railroads, June 17, 1854, Charles Ellet Jr. Papers, Engineering Library, University of Michigan.

40. History of Pittsburgh and Environs (New York: American Historical Society, Inc., 1922), 2: 159-164.

41. James T. Lloyd, Steamboat Directory and Disasters on the Western Waters (Cincinnati: James T. Lloyd and Company, 1856) provides brief descriptions of Pittsburgh and Wheeling 53, 81.

The Central Ohio line had chosen to terminate at Bellaire, Ohio (four miles south of Wheeling) where its officers hoped to negotiate a connection with the B. and O., although Wheeling's railroad committee had temporarily stopped this scheme with an injunction. The request for injunction and the grant of injunction are described in the Wheeling Intelligencer October 9, 1854 and January 6, 8, and 9, 1855. Judge George Western Thompson who granted the injunction had been the member of Congress for Wheeling who had introduced the bill to legalize the Wheeling bridge. The Cincinnati and Marietta line had not extended to Wheeling but planned to connect with the Northwestern Railroad which would cross the river at Parkersburg. See Notices of Parkersburg, Virginia as it is in July, 1860 (Baltimore: John W. Woods, [1860]). Construction on the Hempfield line had halted at Washington, Pennsylvania, due to lack of funds.

42. Peter V. Daniel, letter to the editor, Wheeling Intelligencer, May 31, 1855.

43. Ibid.

44. H. J. Jewett, Letter of H.J. Jewett, President of the Central Ohio Railroad Company, to the President and Directors of the Baltimore and Ohio Railroad Company, in Regard to the Connection between the Two Roads (Baltimore, John F. Wiley, 1858), 7.

45. For example, according to Ellet, Subscriptions the Pennsylvania, B. and O. and Cincinnati and Marietta railroads used the four feet eight and one-half inch gauge, while the Central Ohio, Ohio and Pennsylvania and western end of Steubenville and Indiana railroad

used the four feet ten inch gauge. See pages 4-9.

The best description of the diversity of railroad gauges in the second half of the nineteenth century is George Rogers Taylor and Irene D. Neu, The American Railroad Network, 1861-1890 (Cambridge, MA: Harvard University Press, 1956).

46. The description of the bridge is from U.S. v. Railroad Bridge Company (1855) (27 Fed. Cas. 686, No. 16,114) 693. This case determined that the company had the right to build across an abandoned military reservation. The bridge was elevated thirty-three feet above low water (twenty feet above high water), 27 Fed. Cas. 694.

47. Albert J. Beveridge, Abraham Lincoln (Boston: Houghton-Mifflin, 1928), 1: 599. Lincoln was one of the lawyers representing the bridge (railroad) company.

48. Hurd et al. v. Railroad Bridge Company (not reported). John W. Starr, Jr. Lincoln and the Railroads (New York: Dodd, Mead, 1927). Starr provides a lengthy description of the trial, based on newspaper reports and reminiscences, 92-116.

49. According to William Edward Hayes, Iron Road to Empire: The History of 100 Years of the Progress and Achievements of the Rock Island Lines (New York: Simmons-Boardman, 1953), 48, another case was brought a year later in federal district court in Iowa and was subsequently appealed to the U.S. Supreme Court. The final decision favored the bridge.

In 1858 Congress considered whether the Rock Island Bridge obstructed navigation on the Mississippi River. In the appendix to the House Committee on Commerce Report, Charles Ellet, Jr. stated that "the construction of the bridge, so far as it was above water and apparent to observation, was creditable, but that the location of its supporting piers was very objectionable" since they were too broad and were not built parallel to the current. Railroad Bridge across the Mississippi River at Rock Island, 35th Cong., 1st sess. (1858) H. Rept. 250, 26.

50. Barge towing developed as an outgrowth of the practice of floating coal downriver on flatboats or towing it in old steamboat hulks whose superstructures and machinery had been removed. Soon specialized barges were developed to haul raw material and grains and by 1860 forty to sixty specially-designed towboats operated along most of the reaches of the major western rivers. By the Civil War a typical Pittsburgh to Cincinnati coal tow included ten barges with overall dimensions of 110-160 feet (wide) by 400 or more feet (long). Tows

on the lower Mississippi River were larger. See Hunter, 567-581.

Construction of larger and longer steamboats also characterized the period of adjustment to railroad competition. At mid-century the largest vessels afloat measured 500 tons; by the mid-1850s twenty boats measured more than 700 tons and two measured over 1,000 tons. In the immediate post-Civil War boom (1864-1865) twelve boats over 1,000 tons were built. Typical dimensions of these behemoths approached 100 feet in width and 300 feet in length. See Hunter, 606-609.

51. Charles Ellet, Report on a Suspension Bridge across the Potomac for Railroad and Common Travel (Philadelphia, John C. Clark, 1852), 13-14.

52. Report on the Internal Commerce of the United States [by William F. Switzler] 50th Cong., 1st sess. (1888) H. Ex. Doc. 6, Pt. 2, 552.

53. David Plowden, Bridges: The Spans of North America (New York: Norton, 1974), 57-71.

54. 12 Stat. 569. "An Act to Establish certain Post-Roads."

55. There were additional requirements. "That if the said bridge shall be made with unbroken and continuous spans, it shall not be of less elevation than ninety feet above low water mark over the channel of the said river; nor in any case less than forty feet above extreme high water, as understood at the point of location, measuring for such elevation to the bottom chord of the bridge; nor shall the span of such bridge, covering the main channel of the river, be less than three hundred in length, with also one of the next adjoining spans of not less than two hundred and twenty feet in length, and the piers of said bridge shall be parallel with the current of the river as near as practicable."

56. There were other conditions required. "That if any bridge built under this act shall be constructed as a drawbridge, the same shall be constructed with a span over the main channel of the river, as understood at the time of the erection of the bridge, of not less than three hundred feet in length, and said span shall not be less than seventy feet above low water mark, measuring to the bottom chord of the bridge, and one of the next adjoining spans shall not be less than two hundred and twenty feet in length; and also that there shall be a privot-draw constructed in every such bridge, at an accessible and navigable point, with spans of not less than one hundred feet in length, on each side of the central or pivot pier of the draw."

In 1852 the Supreme Court had required the Wheeling Bridge draw to be 200 feet in the clear. 13 Howard 624.

57. Letter of the Secretary of War, 42d Cong. spec. sess. (1871) S. Ex. Doc. 1, 6.

58. 14 Stat. 244.

59. The dispute centered on the Cincinnati and Newport Bridge. Accidents caused by collisions with the piers of Ohio River Bridges between 1863 and 1871 amounted to $198,692 and six lives lost. 42d Cong., spec. sess. (1871) S. Ex. Doc. 1, 36-37.

60. Ibid. 2.

61. Ibid. 68-69. The bridge then under construction between Cincinnati and Newport appeared likely to cause even more accidents. Ibid. 59-67.

62. Ibid. 73.

63. 17 Stat. 44; 17 Stat. 215 for the Mississippi River. 17 Stat. 398 for the Ohio River. The Ohio River law adopted the wording provided by the engineers'report. The Mississippi River law, however, required that bridges "be built and located under and subject to such regulations for the security of navigation of said river as the Secretary of War shall prescribe . . . ." 17 Stat. 44, Sect. 5.

64. Report of the Secretary of War, 43rd Cong., 1st sess. (1873) H. Ex. Doc. 1, Pt. 2, Vol. 2, 62.

65. Ibid. 63.

66. Ibid.

67. Ibid. Appendix P, 576.

68. 22 Stat. 414.

69. For example, between May 15 and May 17, 1886 eighteen bridge bills became law. 24 Stat. 23; 24 Stat. 25; 24 Stat. 27; 24 Stat. 28; 24 Stat. 47; 24 Stat. 48; 24 Stat. 52; 24 Stat. 53; 24 Stat. 55; 24 Stat. 57; 24 Stat. 58; 24 Stat. 59; 24 Stat. 60; 24 Stat. 62; 24 Stat. 63; 24 Stat. 64; 24 Stat. 65; 24 Stat. 67.

On March 3, 1887 (the last day of a lame-duck session) twenty-one bridge bills passed. 24 Stat. 468; 24 Stat. 470; 24 Stat. 471; 24 Stat. 472; 24 Stat. 474; 24 Stat. 493; 24 Stat. 501; 24 Stat. 502; 24 Stat. 504; 24 Stat. 508; 24 Stat. 546; 24 Stat. 558; 24 Stat. 561;

24 Stat. 562; 24 Stat. 564; 24 Stat. 565; 24 Stat. 566; 24 Stat. 567; 24 Stat. 632; 24 Stat. 633.

70. 25 Stat. 400, 424. (1888).

71. Since the law provided a mechanism to determine obstructions to navigation this statute finally fulfilled Justice Levi Woodbury's request of forty years before in U.S. v. New Bedford Bridge: that Congress should recognize "more of its dormant powers to regulate commerce and provide . . . relief and redress." 1 Wood. & M. 505.

72. 26 Stat. 426, 453 (1890); 30 Stat. 1121, 1153 (1899).

73. E. Parmalee Prentice and John G. Egan, The Commerce Clause of the Federal Constitution (Chicago: Callaghan and Company, 1898), 130-131.

74. Hannibal Bridge Company v. U.S. (221 U.S. 194); Union Bridge Company v. U.S. (204 U.S. 364); Monongahela Bridge Company v. U.S. (216 U.S. 177). Louisville Bridge Company v. U.S. (242 U.S. 409) reversed U.S. v. B. and O. Railroad Company (unreported) and U.S. v. Parkersburg Branch Railroad Company (134 Fed. Rep. 969; 143 Fed. Rep. 224).

75. In 1849 Israel Dickinson, clerk of the works on the Wheeling bridge, estimated construction of the suspension bridge at 130 feet (the original demand of the plaintiff) at $575,000. A rough approximation of the cost at 11 feet equals about $368,000, or more than double the cost as built. This cost was obtained by taking Dickinson's estimated cost, subtracting the cost of the bridge as built ($161,594--from 42d Cong., spec. sess. (1871) S. Ex. Doc. 1, 36-37) dividing the difference by two and adding it to the as built figure (since the Court's required 111 feet was roughly one half the difference between 130 feet and the elevation as built of 92 feet). Record: State of Pennsylvania v. the Wheeling and Belmont Bridge Company, William Ottersan, and George Croft ([Washington, DC]: Gideon, [1850]), 366-374.

76. 42d Cong., spec. sess. (1871) S. Ex. Doc. 1, 4.

77. Although the Court had required the Wheeling and Belmont Bridge Company to build a draw of 200 feet, statutory requirements for bridges never exceeded 160 feet.

78. The two justices were Taney (13 Howard 592) and McLean (13 Howard 577).

79. 42d Cong, spec. sess. (1871) S. Ex. Doc. 1, 6.

80. The Cincinnati bridge was completed in 1877, the St. Louis Bridge in 1874. Plowden, 69, 128-130.

81. Suspension technology saved materials by using drawn iron wire in its most efficient form--in tension. Truss bridges of the time required staging which blocked the waterway.

82. Emory L. Kemp, "A Case for Technology Transfer," West Virginia's Historic Bridges (Charleston, WV: West Virginia Department of Culture and History, 1984), 103-111. According to Kemp the design of these five bridges was the same as the Wheeling Bridge, the wire for the bridges was supplied from Wheeling and the cable prepared by workmen who had built the Wheeling Bridge.

83. This action on the part of the Secretary of War had brought about the suits listed at note 74.

84. The engineers who proposed that the Secretary of War be provided with power to approve plans believed the provision could benefit both bridge and boat interests. In the case of the Cincinnati and Newport Bridge they remarked: "the provision that the clear channel span shall be 400 feet and the next one 220, uses up so much of the river space that there is but little margin left for selecting a place for a draw." Here was an instance where discretion to modify unrealistic requirements would provide a better bridge. 42d Cong., spec. sess. (1871) S. Ex. Doc. 1, 69.

85. The "knotty questions" of policy associated with the Wheeling bridge dispute had been pointed out by the editor of the Scientific American on April 17, 1852.

EPILOGUE

The Wheeling and Belmont Bridge Company dropped the corruption charges pending against Justice Robert C. Grier in 1855.[1]

Charles Ellet became consulting engineer of the Virginia Central Railroad and served as Colonel of Engineers in the Union forces during the Civil War. He never built another suspension bridge. He died in 1862 as the result of a wound sustained at the Battle of Memphis.[2]

The Pennsylvania, whose captain had taunted Wheeling citizens in 1854 by lowering its chimneys at the site of the fallen suspension bridge, moved to the Mississippi River trade in 1856.[3] On June 13, 1858 the Pennsylvania exploded near Helena, Arkansas, killing approximately 150 people, including the young third clerk, Henry Clemens. Henry's brother Sam described the catastrophe in his Life on the Mississippi.[4]

William Thaw and Thomas S. Clarke, owners of several of the Pittsburgh and Cincinnati packets, shifted their forwarding business to the railroads, for several years handling all western freight for the Pennsylvania Railroad. Clarke was a director of the Pennsylvania Railroad. Thaw was a vice president of the Pennsylvania Company, which

owned the Pennsylvania Railroad's western connections to Chicago and St. Louis.[5]

The Wheeling and Belmont Wire Suspension Bridge still spans the Ohio River at Wheeling, West Virginia. It has been designated a National Historic Landmark, a civil engineering landmark and is listed with the International Council of Monuments and Sites.[6]

Notes

1. James Baker to Charles Ellet, Jr., July 9, 1855, Charles Ellet Jr. Papers, Engineering Library, University of Michigan.

2. See Gene D. Lewis, Charles Ellet, Jr.: The Engineer as Individualist, 1810-1862 (Urbana, IL: University of Illinois Press, 1968).

3. Frederick Way, Jr., Way's Packet Directory, 1848-1983 (Athens, OH: Ohio University Press, 1983) entry for the Pennsylvania.

4. Mark Twain, Life on the Mississippi (New York: Harper's, 1896), Chap. 20.

5. Entries for Thomas S. Clarke and William Thaw in John W. Jordan, Encyclopedia of Pennsylvania Biography (New York: Lewis Historical Publishing Company, 1915).

6. Elizabeth Nolin (ed.), Wheeling Port of Entry (N.p., [1988]), 38.

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U.S. Congress. House. National Road, Wheeling to Missouri. 19th Cong., 2d sess., 1827. H. Doc. 74.

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U.S. Congress. House. Wheeling and Belmont Bridge Company.

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U.S. Congress. House. Report in Relation to the Steamboat Navigation of the Monongahela River, from Pittsburgh to the Cumberland Road at Brownsville. 22d Cong., 2d sess., 1833. H. Doc. 126.

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I have been a full-time faculty member at Northern Virginia Community College, a member of the founding staff of the Virginia Foundation for the Humanities, an architectural historian for the Mississippi Department of Archives and History and for the Florida Division of Historic Preservation. In the last position my duties included research, contract administration, grant administration, providing information on federal and state preservation laws, lobbying the legislature and acting as hearing officer and supervising personnel. I have also served in adjunct teaching positions at Florida Agricultural and Mechanical University (undergraduate architecture), Florida State University (graduate history) and the University of Florida (undergraduate and graduate history).

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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